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## ORIGINAL ARTICLES.

### THE PROPHYLAXIS OF LOBAR PNEUMONIA.[1]


BY J. M. ANDERS, M.D., LL.D.,

OF PHILADELPHIA;

PROFESSOR OF MEDICINE AND CLINICAL MEDICINE AT THE MEDICO-CHIRURGICAL COLLEGE, ETC., PHILADELPHIA.


PNEUMONIA being the most dreaded of all human diseases owing to its unparalleled death-rate and universal prevalence, obviously its prevention becomes a subject of first importance.

The natural methods of diffusion of the pneumococcus are somewhat obscure, so that the prophylactic measures to be advised and encouraged are more or less empirical, but many of these have assumed importance in view of our increased knowledge of the principal ways in which the disease is propagated. The causative organism is contained in the sputum of pneumonia patients, and doubtless the most common mode of infection is by invasion through the respiratory tract. Implantation may result either from the migration of the specific organism contained in the secretions of the upper air-passages down to the alveoli at a time when immunity is reduced, or through the inhalation of particles of dried, pneumonic sputum floating in a dusty atmosphere, or finally in the act of coughing, salivary droplets may convey the virus to the bystander or attendant. Unquestionably, the virus is transmitted from infected persons principally by the dried sputum, and there can be no doubt that it is often harbored in the nasopharynx of healthy persons, and in private houses and institutions previously occupied by pneumonia patients. It may be safely assumed that direct transmission of the virus (contagion), as exemplified by house epidemics, occurs in some instances at least. My own investigations into the subject lead to the inference that the incidence of the disease is much influenced by indoor conditions, more particularly such as obtain during the cold season.

As elsewhere stated, "may not the higher incidence of pneumonia in winter and spring be due not so much to the direct effect of the low temperature, augmented barometric pressure and velocity of the winds, as to the closer confinement of the populace indoors, in the stagnant air of living-rooms from which the sunlight is excluded, and which tends to lower vitality and decrease resistance on the one hand and to favor rapid multiplication and increased virulence of the specific poisons on the other."[2] Exclusive of epidemic outbreaks, there is an evident tendency to a preponderating prevalence of the disease in overcrowded districts and among the impoverished classes. My earlier collective investigations showed that the average mortality-rate for four years in New York (considering the eight wards which are most densely populated), is 18 per cent.

"The Fourth, Sixth, Seventh, Tenth, Eleventh, Thirteenth, Fourteenth, and Seventeenth wards of New York City were embraced in this estimation. In contrast with the figures just given, eight wards, representing the most sparsely settled portions of the city of New York (*e.g.*, First, Fifth, Eighth, Ninth, Fifteenth, Sixteenth, Eighteenth and Nineteenth) gave for the same period of four years an average mortality of 14.3 per cent. It was observed in the compilation of these mortality statistics that an elimination of the epidemic periods would make the difference in percentage dependent on the population somewhat greater."[1]

The epidemiologist has properly emphasized the fact that the conditions necessary to the well-being of the specific organism are to be found in the densely populated centers of the more highly civilized communities and especially during seasons of low temperature, but like other acute infections that prevail epidemically, pneumonia shows a wave-like character on comparing different years for the same locality. It must be confessed that the medical profession is sadly in need of definite knowledge bearing upon the extracorporeal phases of the pneumococcus and its transmitting agencies. That absence of sunlight and abnormal dryness of the atmosphere, however, favor diffusion of the virus, is highly probable.

On the other hand, the question of individual predisposition confronts us and also calls loudly for a proper answer. Says Wells,[2] "that the increased prevalence of pneumonia is due to any general deterioration of the resisting powers of the populace to morbid infections, is disproved by the fact that the average duration of life has been distinctly lengthened during the period of years covered by our inquiry."

This position, however, is scarcely tenable for the reason that while there is on the whole greater physical efficiency and a higher bodily standard as well as a notable decrease in prevalence and fatality of most infective diseases, *e.g.*, phthisis, diphtheria, malaria, and diarrheal diseases, there has been an increase in incidence of pneumonia, cancer, affections of the kidneys and cardiovascular degenerations, fatty and

1 Read before the American Therapeutic Society, Philadelphia, May 5, 1905.

2 "Meteorologic Conditions in the Causation of Lobar Pneumonia," American Medicine, Vol. VIII, No. 10, p. 407 to 415, September 3, 1904, by the writer.

1 Jour. Amer. Med. Ass'n, May 9, 1903, p. 1291.

2 "Prevalence and Prophylaxis of Pneumonia," Jour. Amer. Med. Ass'n, Feb. 4, 1905.

fibroid. The increase in the prevalence of the degenerations—myocarditis, arteriosclerotic changes and kidney diseases—within the last two decades has been quite notable; and I[1] have elsewhere adduced figures which furnish strong presumptive evidence that these rank as potent, predisposing causes of lobar pneumonia. I am not prepared to deny that the pneumococcus has become more prevalent, probably more virulent, or that our opportunities for encountering the germ have been multiplied and that each of these factors is contributory to the increased prevalence of pneumonia. It is well-known at present writing that the pneumococcus is commonly found in the nasopharyngeal secretions of healthy persons for long periods of time, and that one or more of the usual predisposing conditions may render the specific organism infective or pathogenic. Wells examined the secretions from the respiratory passages, oftenest from the throat, in 135 persons, and found the pneumococcus present in 62 or 45 per cent. Says this writer, it is obvious that the "pneumococcus-laden secretions from these parts extruded in such manner that they find entrance, as spray or dust, into the respiratory passages of other and unaffected persons." It is only necessary for such healthy persons to develop predisposition which may be brought about by exposure to extreme heat or cold, acute or subacute catarrh of the naso-pulmonary tract, or as the result of alcoholism and the various degenerations already mentioned, in order to excite bacterial invasion of the pulmonary tissues and thus produce the pneumonic process. It is to be recollected that the bed-clothes, garments, carpets or furniture may become soiled with pneumococci-bearing sputum not only during an attack of pneumonia but also during health, and more especially by those suffering from coryza or acute bronchitis.

From the foregoing facts it is clear that the most efficient prophylaxis for pneumonia in the present state of our knowledge must have reference to the accomplishment of four main objects: (1) To overcome individual predisposition; (2) the prompt and thorough disinfection of the sputum and secretions of the upper respiratory tract; (3) isolation of the patient especially from the debilitated, and disinfection of the sick-room together with its contents after death or recovery, and (4) the observance of certain public measures.

1. This embraces protection of the body from extremes of temperature and dampness, by means of woolen underclothing. On the other hand, excessive clothing is to be avoided. While prolonged exposure during the cold, inclement seasons is fraught with danger, careful, judicious "habituation of the body to cold air and cold water" becomes at once an efficient and successful prophylactic measure. In the various degenerations referred to, which are slowly but steadily progressive as a rule, our efforts must be directed toward the maintenance of the highest degree of nutrition attainable. This remark applies with peculiar force to aged persons, who are peculiarly susceptible to the pneumococcus. The aim should be to improve the general condition of the patient principally by hygienic and dietetic means. The environment should be made as favorable as possible; an out-of-door life in a favorable climate, an abundance of nutritious and easy digestible and assimilable food, are required first of all. On the other hand, irregular habits of body, immoderate exercises of mind, worry and passionate emotions and appetites should be regulated and alcoholic drinks avoided. Granting that the augmented prevalence of visceral degenerations, particularly of the cardiovascular system and the kidneys, is responsible to an extent for the greater incidence and morbidity of pneumonia, it is clear that efficient prevention must begin with a correction of the mode of life of the American populace. In other words, we are living in an era characterized by undue devotion to business activities, by excesses in society affairs, and club life,—social conditions on which cardiovascular and renal degenerations largely depend. In my opinion the weak and debilitated should employ a suitable tonic composed of strychnine, quinine and gentian during the pneumonia season—winter and spring. It is equally important that this class of patients be not unduly exposed to the danger of infection. The avoidance of prolonged exposure to cold or dampness following bodily fatigue, is vitally important. Existing catarrhal affections of the respiratory tract should be actively treated without delay, especially during the cold seasons. All obstructive lesions of the nose should be removed. In this way mouth-breathing during sleep, which favors migration of pneumococci and other organisms from the throat to the air-cells, is minimized.

In this connection too much stress cannot be laid upon the importance of constant and systematic ventilation of the living and sleeping apartments. As before stated, there is a tendency to a preponderating incidence in overcrowded districts and among the impoverished classes whose illy ventilated houses favor the rapid multiplication and increased virulence of the pneumococcus. Per contra, it may be safely affirmed that the poison is attenuated or weakened in summer by the free circulation of air when the windows and doors of dwellings are kept open. This fact explains, in part at least, why the number of cases diminishes annually during the spring and summer months, reaching the minimum prevalence in the month of August. Lack of ventilation also lowers resistance, particularly among those who seldom take the air. Although science is unaware of any rôle played by insects in the transmission of the pneumococcus, yet from what is known on other grounds it is well to exclude them from the sick chamber.

1 "Social Conditions in America in Their Relation to Medical Progress and Disease," Journ. Amer. Med. Ass'n, May 9, 1903.

2. The prompt and thorough disinfection of the sputum and secretions of the upper respiratory tract. Mention has been made of the fact that the pneumococcus is present in the secretions from the nose and throat of nearly one-half of the urban populace. The sputa of all persons also contain a considerable variety of pathogenic germs. There can be no doubt that the advent of smooth, asphaltum, pavements has been productive of clouds of dust hitherto unknown and these obviously favor the diffusion of specific micro-organisms. D. H. Bergey[1] has emphasized the effect of dust in lowering the vitality of the mucous membranes of the respiratory tract and thus facilitating the invasion of these tissues by the bacteria when inhaled subsequently. The modern "machine," or automobile, stands at the very head of our dust-producing methods of transportation. It follows that more thorough and efficient cleaning, coupled with regular, daily, sprinkling of the streets is the best mode of safeguarding the public from the baneful influences exerted by a dust-laden city atmosphere. In all municipalities street-cleaning should be attended to by the health authorities whose experience and training enable them to appreciate the danger to the public health of dirty, dusty streets.

A prophylactic measure against pneumonia and other diseases of the respiratory tract is rigid cleanliness of the nose, throat and mouth. This should be followed by the application of a mild disinfectant solution, but the latter is never to be employed to the exclusion of previous cleansing of these cavities of any accumulations of secretion that may be present—a prophylactic measure of the utmost value and one that should be universally practised. Says Wells, "when it has been demonstrated that the nasal, pharyngeal, and oral secretions contain the pneumococcus, efforts at cleanliness of these cavities must be particularly well directed and maintained."

The sputum should be thoroughly disinfected and then promptly destroyed by burning. The patient must be instructed to expectorate into a spit-cup or other suitable receptacle containing an efficient disinfectant, *e.g.*, a five per cent. solution of carbolic acid or a solution of mercurial chloride (1/2,000). Finkler[2] recommends the following method of sterilizating pneumonic sputum: Into the spit-cup is poured a solution containing three per cent. each of caustic potash and borax, which is colored red by a trace of phenolphthalein. In this alkaline solution the sputum is completely dissolved. There is then added enough of a solution of hydrochloric acid and corrosive sublimate (strength not stated) to decolorize the red alkaline solution, and when this has taken place the cup is emptied. Certain writers have recommended that the sputa be discharged upon rags, which are to be burned before they become dry. I do not advise this method of collecting the expectoration inasmuch as it affords opportunity for soiling the bed- and body-linen as well as other objects, and thus facilitates the dissemination of the pneumococcus. The sputum that clings to the mouth, teeth, or mustache of the patient, as well as that which may accidentally soil the body- or bed-linen at the time of expectoration, should be wiped with a cotton or other suitable cloth, moistened with a disinfectant solution and then quickly burned.

In the case of pneumonic patients and in those known to harbor the pneumococcus in their respiratory tract, Wells recommends that a protective cloth or other suitable filtering material should be worn over the mouth and nose to prevent accidental transference of the virus by the acts of coughing and sneezing. At all events, a cloth moistened with a disinfectant solution should be held before the nose and mouth during the act of coughing or sneezing, so as to prevent the emission of the pneumococci-laden salivary droplets into the surrounding atmosphere. In this connection the assumption is justifiable that universal and thorough sterilization of pneumonic sputum would be followed by a lessened incidence of the disease within a brief period of time. Unfortunately, the medical profession has not as yet been aroused to a realizing sense of the immense importance of this prophylactic measure, and it is a reproach to that guild, of which we are justly proud, that the known means of prevention are either neglected or too carelessly enforced. It is perfectly feasible to adopt a line of procedure that will diminish the prevalence of this highly mortal disease. I consider the question of thorough disinfection of the sputum, the bed- and body-linen, the mattress and room occupied by the pneumonia patient a prime requisite, but I have a fixed belief that these matters, like the sputum, do not receive the rigid care and attention which they richly merit by the average general practitioner, and it may require municipal regulations to carry out certain measures that are more or less preventive of the spread of the disease. This brings up the question whether or not pneumonia should be classed as a notifiable disease. The desirability of placing pneumonia on the list of returnable diseases has been maintained by certain writers and I feel justified in assuming that this course would be the means of cutting off avenues of transmission of the poison and probably the arrest of extensive epidemic prevalence of the disease. This recommendation, however, implies a bacteriologic diagnosis in all instances.

3. From what has been stated regarding the importance of sterilizing pneumonic sputum, it follows that isolation of the patient must form an active prophylactic factor. Pneumonia obeys the laws of acute infectious diseases and there is incontestable proof that it is feebly contagious. B. Robinson[1] and other recent writers, insist upon the fact that the pneumococcus is directly trans-

1 "Neglected Prophylactic Measures Against Diseases of the Respiratory Tract," MEDICAL NEWS, September 5, 1903.
2 Quoted by F. P. Henry, Philadelphia Medical Journal, Feb. 14, 1903.

1 Lancet, April 16, 1898.

missible. The occurrence of house epidemics is not uncommonly observed and it is probable that this form is spread by contagion. After leaving his sick chamber, the room occupied by the patient should be carefully fumigated. It is vitally important that the bed- and body-linen be frequently changed during the course of the attack, and upon removal from bed, boiled for half an hour. The sputa quickly become desiccated and form a source of contamination of the house air, floors, sidewalls and furniture. Such rooms are centers of infection to the debilitated or even to healthy persons whose resistance is temporarily lowered, and should be thoroughly fumigated with formalin after the patient recovers. Finally, it is obvious that united intelligent effort on the part of the profession, would successfully cut off this the principal channel of communication between the sick and the healthy for the pneumococcus.

4. Public health authorities could accomplish valuable results by issuing rules which should govern the management of cases of pneumonia, and the best means of preventing the transmission of the disease. In particular, attention should be drawn to the question of systematizing the details connected with the subject of the prevention, and also stating simple plain facts about the way in which the disease is spreading. I should strongly favor the scheme of placing appropriate printed matter in a form suitable for preservation in the homes of the people at the beginning of the pneumonia season, and mural placards should be advised and encouraged. Of course, all practitioners of medicine should be provided with copies of these rules and it should be obligatory upon them to carry out the instructions of the health authorities. Surely, the matter is of sufficient importance to compel the most serious attention to the subject not only on the part of the profession and sanitary boards, but also of the laity.

It should be definitely understood by the populace in general that the heavier alcoholics are toxic in their effects, lowering the vitality and thus inviting infection during the pneumonia season. Vital statistics leave no room for doubting that the diseases caused by alcoholism, such as chronic infections of the kidneys, blood-vessels, heart, and cirrhosis of the liver, all predispose markedly to the fatal malady under consideration. Besides these, there are many questions connected with the subject of individual predisposition to which State and municipal boards of health should seriously turn their attention with a view to enlightening the general public.

There is another important element to consider; I refer to the more efficient ventilation of our office buildings, theaters, courts of justice, manufacturing establishments, churches, public schools, and passenger and street railway cars. In all of these places, in which persons habitually congregate in large numbers, and infectious diseases are propagated by the stagnant, impure air, protection of the public against the grave danger of contracting pneumonia and other infectious diseases should be provided by boards of health, to which should be given unlimited powers.

As stated above, it should be the duty of Bureaus or Boards of Public Health to look after street-cleaning and street-sprinkling, and to them should be given full executive authority. It requires no lengthy argument to indicate conclusively that this important work naturally forms a portion of the sanitary administration of our municipalities. For example, the extent to which the public is compelled to inhale bacteria-laden dust in our public highways in Philadelphia, should not be permitted to continue without a strong protest by the local medical profession and hygienists. The sanitary requirements of a city can only be met by a system of street-cleaning and automatic sprinkling under the immediate control of specially trained health authorities.

In conclusion we must look to the possibility of a successful municipal control of an effective prophylactic system. Nothing like a full consideration of this aspect of the subject can be given in the present article. It offers many difficulties, but the arguments of greatest weight are on the side of rules and regulations to be enforced by municipal and State health authorities. And I would urge upon my hearers that the subject of the need of systemic effort to control the spread of this dread disease, has come before the medical profession for immediate consideration and action. Viewed from an economic standpoint alone, a great saving would result from a proper system of laws and regulations providing for simple but rigid means of safeguarding the individual, the family, and public against the spread of the disease.

The *status præsens* of medical science with reference to the subject under consideration and the facts presented in the above discussion of the same warrant a few inferences:

1. The prevalence of influenza during the last fifteen years has brought about an increased receptivity for and incidence of the pneumococcus infection.

2. Certain degenerative lesions, especially of the cardiovascular system and the kidneys, have shown an increased incidence during the last two decades; and these are found to be associated or antecedent conditions in the majority of cases of pneumonia, hence are probably potent, predisposing factors.

3. The indoor conditions during the cold season favor multiplication and propagation of the pneumococcus and at the same time tend to diminish resistance to infection by the specific organism.

4. The aged are peculiarly susceptible to pneumococcus infection, hence their bodies should be kept as strong and healthy as possible, especially during the pneumonia season.

5. To overcome the predominating factors in individual predisposition, special attention must be paid to the subject of ventilation, to appropriate clothing, and the avoidance of agencies that cause degeneration of the heart, blood-vessel system, and kidneys, as alcohol, social excesses, an overstrenuous business or professional life, and the like.

6. The sputum is the principal source of infection and should be thoroughly disinfected so soon as it is expectorated, and then destroyed by burning.

7. A large proportion of the general populace harbors the pneumococcus in the nasopharynx, and this is especially true in families and institutions in which cases of pneumonia have occurred, hence thorough cleanliness and systematic disinfection of these chambers should be carried out during the pneumonia season, more particularly in the case of persons more or less exposed to the virus of the disease.

8. Means to prevent dust from accumulating and its daily removal from home and the city streets, are imperatively demanded.

9. Public health authorities should be given full executive power to carry out rules and regulations relative to pneumonia looking to the prevention of its spread, as in the case of other infectious and contagious diseases; they should also carry on a campaign of public education.

10. Measures of prophylaxis must accord with intelligent public opinion before they can be rendered wholly efficient either by municipal or private authority.

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## CAUSES UNDERLYING PROLONGED LOSS OF FUNCTION IN CERTAIN INJURIES ABOUT THE SHOULDER-JOINT—PROGNOSIS—TREATMENT.

BY ALFRED S. TAYLOR, M.D.,
OF NEW YORK;
VISITING SURGEON RANDALL'S ISLAND HOSPITAL; ASSISTANT INSTRUCTOR IN OPERATIVE SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS (COLUMBIA).

THERE are many cases of injury about the shoulder-joint followed by prolonged disability.

Of these cases a large proportion give a history of a fall from greater or less elevation upon the shoulder. They sustain neither fracture nor dislocation of any of the bones, but after the ordinary results of contusion have had time to disappear, there persists a definite symptom-complex.

*Pain* is constant, involves the shoulder region, radiates upward into the neck, and is aggravated by motion, either active or passive. There is also tenderness to pressure in the same regions.

*Loss of power* varies from moderate paresis to complete paralysis and involves definite muscles. In certain degrees of injury the deltoid, the supra- and infraspinati and teres minor muscles only are involved, with the result that abduction and external rotation are enfeebled or absent. More severe injuries involve, in addition, the biceps-brachialis anticus group and the supinator group of the forearm, with corresponding loss of motion.

*Atrophy* of the muscles involved is greater than can be accounted for by disuse. In rheumatic patients and those of middle age synovitis of the joint is frequently present (usually dry type). Momentary forward subluxation at the shoulder, accompanied by sudden pressure damage to the brachial plexus, although sometimes advanced as the etiological factor, does not stand the test in theory (inasmuch as the spinati get their nerve supply entirely above the site of such possible injury), nor can it be demonstrated to have occurred in practice.

These cases resemble very closely those in infants who are the victims of obstetrical palsy, and it was after a series of dissections and experiments upon stillborn infants to determine the etiology and gross pathology of the lesion in those cases,[1] that a reasonable explanation of the cases occurring in patients suggested itself.

It is worthy of note that the muscles involved follow definite groupings and that in passing from the less to the more extensive degrees of injury these groups follow closely the order of exit of their motor nerve supply in the roots of the brachial plexus, from above downward.

Since this is also true in the cases of obstetrical palsy, it would seem reasonable to assume that the same underlying cause exists in both series.

In obstetrical palsy the paralysis results from overstretching of the nerve roots of the brachial plexus by displacing the head and neck too far laterally from the corresponding shoulder. There result rupture of nerve, traumatic neuritis, and cicatricial contraction around the nerves, hindering or preventing their return to normal function. These lesions occur from above downward in the plexus. The cases in adults under discussion can be entirely explained on the same basis.

In the six or eight cases which presented themselves at clinic, after this explanation had suggested itself, a careful inquiry into the history always elicited the fact that patient had so fallen as to strike on the head and shoulder simultaneously and force them suddenly apart. This is precisely the anatomical attitude which puts the roots of the brachial plexus on the stretch. One case was specially interesting, as it demonstrated the extent of damage possible from this mechanism. A young man of twenty-eight years had fallen from the top of a freight car some few months previously, landing on his head and left shoulder. When he regained consciousness the left upper extremity was totally paralyzed. He entered hospital and operation disclosed complete rupture of the plexus.

This explanation applies not to all injuries about the shoulder, but only to those followed by the symptom-complex previously outlined.

The prognosis given must never be too favorable, especially in patients over forty years of age. Only after the lapse of months, six to eight,

1 Clark, Taylor, Prout. "Brachial Birth Palsy," Neurological Society, April, 1904.

can a definite prognosis be given. Treatment should be based upon the following principles: (1) Immobilization of the extremity for three weeks to favor nerve repair, with the minimum amount of reaction; (2) counterirritation over the roots of the brachial plexus; followed by (3) massage, electricity, douches, etc., to the paralyzed muscles; and finally, in cases of persistent paralysis, (4) exploration of the plexus and excision of damaged tissue followed by nerve suture.

There are certain other interesting cases, closely allied to those already described, where prolonged loss of function follows a fall forward upon the outstretched hand, or upon the shoulder so as to push it sharply backward without increasing its distance from the head and neck.

In these cases the spinati usually escape paralysis (*i.e.* suprascapular nerve undamaged), and therefore the lesion could not be due to a stretching lesion (inasmuch as that always involves the suprascapular nerve first), but is more likely due to pressure upon the plexus between the clavicle and first rib. In these cases the prognosis is better and the period of recovery shorter.

*Summary.*—1. The paralyzed muscles are in groups corresponding to the exit of their motor nerve supply in the roots of the brachial plexus, from above downward. Spinati, teres minor, deltoid; biceps, brachialis anticus, supinators; entire musculature of extremity in severest lesions.

2. The lesion is situated in the roots of the brachial plexus, most commonly at the junction of the fifth and sixth cervical roots, but may involve any portion or all of roots from above downward.

3. The lesion is caused by too great diastasis of the head and neck from the shoulder which results in

4. Overstretching (rupture) of the nerves followed by paralysis, traumatic neuritis, and often cicatricial compression of the nerve with permanent impairment of function.

5. Prognosis not very favorable.

6. Treatment.—(*a*) Immobilization of extremity with counterirritation over nerve roots; later (*b*) massage, electricity, etc.; (*c*) finally surgical interference in selected cases.

152 West Fifty-seventh Street.

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**Endothelial Separation in the Smaller Arteries and Veins.**—In microscopic sections of various organs taken post mortem, there is frequently seen a partial separation of the endothelium of the smaller arteries and veins. C. G. FARNUM (*Jour. of Exp. Med.*, April 25, 1905) believes that this is not an artefact, but is due to some cause as yet unknown. It is seen in both healthy and diseased conditions. The theory has been advanced that this change is caused by spasmodic contraction of the arteries during the death agony. But the author thinks that, inasmuch as it is found in the small veins, as well as the arteries, this theory is not correct.

## A PLEA FOR MEDICAL TREATMENT OF THE INFLAMED APPENDIX.

BY A. L. BENEDICT, A.M., M.D.,

OF BUFFALO, N. Y.;

CONSULTANT IN DIGESTIVE DISEASES, CITY HOSPITAL FOR WOMEN AND RIVERSIDE HOSPITAL; ATTENDANT IN SAME, MERCY HOSPITAL, BUFFALO.

THERE is a familiar story of a stableman who wished to give an emetic to a horse and who placed the powder in a tube, intending to blow it into the horse's mouth. An hour or so afterward he was found sitting behind the barn with his head in his hands and looking ghastly pale. His explanation was that the horse blew first. In the discussion of the relative merits of medical and of surgical treatment of inflammatory conditions of the appendix, the surgeons have blown first and they have so ably presented the claims of operative treatment that any one advocating medical treatment is forced to take a defensive position.

The majority of surgeons seem to be extremists in the matter of operating upon the appendix, although there are many prominent surgeons who argue against the demand for universal operation and many others who, at the bedside, often decide in favor of medical treatment, whereas, in their writings they give the impression of a radical view in favor of surgical treatment.

As in almost every other medical question, either extreme is unwise. To argue that the appendix ought always to be removed at the first appearance of inflammatory symptoms, is justinable only on the ground that it is never affected except in a destructive manner. To hold that an inflamed appendix should always be removed is just as unwise as to adopt the same policy for the tonsil, a finger or limb, an eye, or any other organ which can be sacrificed without necessarily fatal result. Some surgeons have gone so far as to claim that the prompt removal of the appendix—that is to say, within twentv-four hours of the first appearance of inflammatory symptoms—is a simple and harmless operation. Granting this claim, for the sake of argument, the patient has been subjected to a distinctly unpleasant, if not absolutely painful ordeal, he has lost from ten days' to several weeks' time, he has been subjected to a very considerable expense, he resumes his occupation in a generally weakened condition and he has a weak spot in his abdominal wall which is liable in about 1½ per cent. of well operated cases (according to Williams, who is an ardent advocate of operation) to yield and result in a hernia which is both unpleasant, and an actual source of danger. As a matter of fact, the risk of hernia is probably considerably more than 1½ per cent., if we deal with general surgical statistics and not merely those of the most accomplished operators. I recall one case, the roommate of a patient with acute inflammation of the appendix, who showed me, as a matter of interest, the scar of an operation for the same trouble. This young man, athletic in his habits, and sub-

ject to repeated physical strain, had nothing between the intestine and the outer world, but a skin-thick covering, for an area at least an inch in diameter. The intestine could be felt moving as plainly as though it were covered only with a handkerchief. Some unusual muscular strain, a fall upon a stick, a pin prick, might easily rupture the abdominal wall and only prompt and skilful operation would then avail against death from septic peritonitis. Any yielding of the scar after operation upon the appendix, should be met by a firm truss or, better yet, by a second operation—involving its own risk—to close the deficiency.

But the operation for an inflamed appendix is not without its own risks. Such an operation, done within a few hours of the advent of symptoms, is practically a vivisection, that is to say, the bacteria which threaten general sepsis are still confined within narrow limits, and the resisting powers of the patient have not been undermined. Theoretically, the surgeons are right in claiming that the operation involves no danger. Practically, however, we must consider the possibility of death due to the anesthetic, to shock, and to accidental infection or complications. The first is small, varying in normal individuals from about 1 in 2,500 for chloroform to about 1 in 25,000 for ether. In persons with weak circulation, degenerated or inflamed kidneys, liver or lungs, the risk is very much greater. The danger from shock is also small. Infection in the course of operation or after the wound is dressed, drowning in one's own vomit and similar accidents ought never to occur, but we are all human and in any large series of cases some will be found in which an error on the part of surgeon, assistant or nurse, will occur. Then, too, there are various complications which may arise for which no one is at all responsible but which are nevertheless fatal. Altogether, the risks of a simple operation, in the most favorable circumstances, are probably not far from one per cent. Statistically speaking, this is a very small mortality. From the standpoint of the patient, it is different. Few of us are anxious to die, and to incur a one per cent. risk of death in a period of a few weeks is a considerable item, amounting to about as much as the total average chance of death for an adult in an entire year, from all kinds of disease and accident.

Considered in the aggregate, the risk of operation upon the appendix is about the same as for any analogous major operation. Thus, the appendix should not be an exception to the general rule, that an organ should not be sacrificed or treated by operation unless its condition is such as to warrant the fear of sepsis or malignancy—not alone in the sense of cancer. It must be admitted, however, that nothing is lost by the sacrifice of the appendix, any more than of the tonsil, and that the scar of operation does not interfere with décolleté costume. Thus, the only considerations to weigh against the indications for operation, are the discomfort, loss of time and money and actual risk of the operation and the subsequent danger of hernia and of intra-abdominal adhesions.

Without attempting to discuss the minute pathological classification of affections of the appendix, they must be divided sharply into two groups, surgical and medical. In the first group, we have all inflammatory cases with formation of pus, except superficial mucopurulent exudate upon the mucous membrane, all gangrenous cases, all cases of cancer, actinomycosis, tuberculosis and other essentially malignant processes, provided they can be diagnosed, and most chronic inflammations in which the appendix is irregularly constricted and dilated, cases which have passed through an acute attack and have become buried in a mass of adhesions which obstruct the movement of the bowel or which are pulled upon during ordinary movements of the bowel or of the body wall, so as to cause pain. Medical cases include acute, or rather subacute attacks of essentially catarrhal nature, purely spasmodic conditions, unless there is so frequent repetition as to lead to the reasonable diagnosis of a foreign body or concrement, and chronic inflammatory conditions without marked deformity of the appendix and which take a favorable course under treatment.

It will be observed that I grant to surgery the majority of conditions but this does not signify the majority of cases. On the contrary, I doubt if one case in ten requires operation and certainly not one in a hundred, if we base the diagnosis—as has seriously been proposed by some extremists—on such slight grounds as a temporary pain and tenderness in the region of the appendix. Some surgeons must have a very distorted view of the clinical features of appendicitis, since they speak as if pus or gangrene was the usual occurrence, as if most cases operated upon were just on the point of rupturing and discharging pus and intestinal contents into the peritoneum, and as if every gripe in the right side of the abdomen were the beginning of an inflammation, necessarily fatal except for the intervention of the knife. A specialist should always be cautious as to generalizing from his own statistics. Imagine, for instance, my claiming that five per cent. of all medical cases are cancer or that diabetes is more common than lumbricoid worms. Specialists naturally see the worst cases and, to obtain a fair perspective, we must view the field from the standpoint of the general practitioner.

Surgeons sometimes claim that it is impossible to discriminate between cases of appendicitis suitable for medical treatment and those for which surgery is the only relief. With due allowance for the fact that diagnosis is not an absolutely infallible art, and that the choice must be made by an expert, it is just as possible to discriminate between medical and surgical cases of appendix inflammation, as between medical and surgical conditions of the tonsil, kidney, eye, pleura or other organs. A considerable minority

of doubtful cases will be encountered which should, for the present, be treated surgically, and rarely a death will occur which, looking backward, we can see might have been avoided by radical treatment. But it is inevitable that we shall encounter in all lines of practice, certain puzzling cases and certain others in which an apparently trivial condition proves to be due to the most serious but peculiarly masked lesions. On the whole, lives will be saved and much unnecessary suffering and expense avoided, by a policy of discrimination, just as, in the long run, it is better that an occasional life should be lost from failure to amputate an injured limb promptly, than to pursue the uniform policy of amputating all limbs which have become inflamed, broken or sprained.

I recall four cases, one of them in the person of an earnest advocate and performer of radical operations, in which patients whose appendix had already been removed, were seized with violent symptoms of appendicitis. I have seen cases in which the apparently inflamed appendix proved to be the gall-bladder and vice versa. The abdomen has been opened and a mass of orange found instead of the inflamed appendix. Two years ago, a young man consulted me on the advice of his family physician, about a chronically inflamed appendix. It was so irregular in contour that I thought medical treatment would be useless, but it was undertaken merely to keep him in comparative safety until operation could conveniently be performed, there being urgent family reasons for delaying the operation, the anxiety about which would have imperiled a near relative. The treatment succeeded so well that an operation proved unnecessary and the patient has been entirely well for over two years. In two or three cases, patients who have done well under medical treatment have subsequently been operated on and a normal appendix has been found, or rather one that was histologically abnormal, but which had become atrophied to safe proportions and occluded so that further danger of inflammatory reaction from intestinal contents did not exist. Such appendices are the normal desideratum of the practical physician but, of course, are not normal from the standpoint of the anatomist. The finding of similar atrophic appendices at autopsy or upon operations for other conditions is comparatively common, but I allude only to cases under personal observation.

The possibility of recovery, with atrophic appendix, is abundantly established. Is it a possibility of sufficient regularity to be depended upon to the exclusion of surgical intervention? If we are to lump all cases of appendicitis together, it is probable that the routine operative treatment would save more lives than the routine medical treatment, in spite of the direct and indirett operative mortality and not regarding the inconvenience and expense of unnecessary operations. Mv own experience is that the best and safest plan is to discriminate between surgical and medical treatment—this experience being a direct personal one with about 100 cases. By this system of discrimination, I have encountered two or three cases in which patients for whom surgical intervention was strongly advised, recovered without operation, and a few in which the early promise of medical treatment was not fulfilled and in whose cases subsequent operation was necessary. In no instance was the delay injurious. Of course, I do not now refer to cases seen in consultation too late, but only to those seen early enough for a fair examination and when the delay was on my own responsibility. In reviewing the entire list, I recall only one in which it seems possible that life could have been saved by a different course of treatment. The case was a rare one, simulating gall-bladder obstruction. Indeed, there was a spastic jaundice and the appendix lay deeply behind the cecum so that it could not be felt. Even so, the diagnosis was made sufficiently early but I yielded to the advice of a surgeon who counseled further delay of operation and septicemia ensued. This surgeon very generously assumed the blame, but as I told him, it was my business not only to call surgical council, but to say when the operation should be performed. In justice to both of us, it should be said that this death occurred eight years ago, when there was good authority for delaying operation for several days, if it could not be performed in the first thirty-six to forty-eight hours, and this was impossible, as the consent of the family could not be secured.

Surgeons commonly assert that it is impossible to predict the outcome of a case of appendicitis. This is true in the sense that no one can be infallible. It is also true in the sense that only exceptionally would a medical diagnostician base his entire direction of a case upon an early, single examination. Without arrogance, it may also be said that it is true for a surgeon whose skill is developed along entirely different lines. The surgeon is primarily an operator, a hand-worker, to translate literally the word *cheirurgeon* from which our modern term *surgeon* has been corrupted. It is with no disrespect that we say that the surgeon cannot reasonably be expected to possess the requisite diagnostic and prognostic skill for discriminating between the different classes of appendicitis. But for him to deny the possibility of such skill on the part of internists who have spent years on diagnostic problems is as unreasonable as if we should gauge the possibilities of surgery by the operative technic of a man who had restricted his attention to medical practice.

It would require too much space to enter into the minutiæ of differential diagnosis between surgical and medical cases. The principal methods of diagnosis are the microscopical examination of the blood which shows an excess of white cells, especially of the polymorphic variety, if there is sepsis; the pulse; the temperature; the determining or appendicular swelling and reflex muscular contraction to guard the inflamed organ; the symptoms of the patient; and, very important, the

general mutual consistence or inconsistence of the symptoms and signs. It is not safe to base the diagnosis and treatment on any one of these methods, nor to omit any.

Treatment is a very important matter and the surgical assertion that cases subjected to medical treatment usually relapse, is largely based on the results of cases that are not really treated at all but that recover under the use of anodynes.

Probably 99 per cent. of fatal cases of appendix inflammation are due to sepsis within the bowel and, in probably 90 per cent. the chief bacteria concerned are the ordinary colon bacilli and other regular inhabitants of the bowel whose virulence has been increased by constipation and opportunity for growth.

The medical treatment of the acute, or rather the subacute, case should be based on this conception of the nature of the diseased process. In a few instances this conception will prove incorrect, as for example, when there is an acute tuberculous process, a localized pneumococcic infection, or actinomycotic or other specific involvement. But, in the vast majority of instances, the danger of pus or of gangrene is due to the increased virulence of the bacterial flora of the bowel, usually the colon bacillus par excellence. Gangrene may be due to a primary embolism or thrombosis of the vessels, or to an extrinsic strangulation, and perforation may be due, not directly to the burrowing of pus or the destruction of tissue by necrosis, itself dependent on an intense inflammatory reaction, but to the penetration of a foreign body. But a perforation not essentially due to a septic inflammation or a gangrene not essentially due to the same, will not usually present the clinical picure of appendicitis.

A great deal has been written about the use of opium as a splint to an inflamed bowel and about the danger of peristalsis as disseminating septic material and preventing the formation of protective adhesions. Hence, the use of cathartic treatment has been strongly condemned, and the use of sedatives has been urgently advised, morphine being the favorite.

Personally, I hold strongly to the belief in free catharsis and, if indicated, bowel and stomach washes. If a patient is in some out of the way place where operation is out of the question, it is wise to relieve this suffering, splint the bowel with adhesions formed under the assistance of morphine and trust that there will be no perforation or migration of bacteria to the peritoneal surface. Many such cases recovered, with more or less trouble from perityphlitis abscesses or a mass of adhesions crippling the future movements of the bowel, in the old days in which inflammation of the appendix was not known except as a theoretic process or in the form of its terminal septic peritonitis. Many such cases recover today but, personally, I would prefer, even in camp or on shipboard, an operation under morphine narcosis. with such apparatus as a carefully boiled pen-knife, linen thread, domestic needles and clean rags, and done by an unpractised operator, like myself.

But such a choice rarely presents itself in a civilized community. In the ordinary case, I believe that there is no indication for splinting the bowel. In the first place, such splinting is unreliable; perhaps the omentum will travel down to where it is needed and perhaps adhesions will form so as to prevent rupture into the peritoneum and perhaps they will not. In the second place, the splint, if formed, remains to hamper the movements of the bowel for a long time, if not permanently. In the third place, the fracture of the bowel for which a splint is desired by some authorities, is not a simple but a compound fracture—compound in the sense of being septic from the germs of the intestine which are more numerous and more virulent than those of the skin and of the air to which a fracture of bone is subject, and compound in the sense that there is danger of breaking through into the peritoneum. If the fracture of the bowel is not compound in these figurative ways, there is no need for the figurative splint. It should be thoroughly understood that morphine is a dangerous drug in a triple way: First, by disguising symptoms that point toward the need of a prompt operation; secondly, by uncertainly acting toward the formation of a splint of adhesions that is an uncertain reliance and ultimately undesirable, even if it has fulfilled its primary indication; thirdly, by retaining bacteria in the bowel and their toxins in the system.

Granted that the case is mild, the prime indication is to keep it so by getting rid of the contents of the bowel, and I know of no better means to accomplish this than calomel in divided doses, followed by a Seidlitz powder. Saline or boric acid injections may be used if there seems to be lodgment in the large intestine, low down. But there seems to be some danger of increasing the trouble by enemata. The patient should fast and drink plenty of water for two or three days. Credé ointment or pipe-clay and glycerin poultices may be applied over the lower abdomen. They do no harm and I believe are really adjuvants. Hot poultices and ice bags seem to me inadvisable. Pain due to spasm, internal irritation and apprehension can usually be relieved by atrophine, cannabis indica, etc. If severe enough to require morphine, which rarely occurs in my experience, it is severe enough to suggest the need of operation.

Chronic inflammation of the appendix is really a part of a general typhlitis or even colitis. Medical treatment must be continued for several months and consists in appropriate diet: the use of an internal ointment of bismuth, etc., in purpetrol, salol, salacetol, menthol, etc., and external applications according to indications. Only the general principles of treatment can be alluded to here.

It will be noted that the most enthusiastic surgeon cannot contend more earnestly for operation in septic and gangrenous cases than I do. My

ples is simply for proper discrimination and rational treatment, not neglect under morphine, in cases in which operation is unnecessary.

## LATE RESULTS OF SURGICAL TREATMENT IN GASTRIC ULCER.—PRELIMINARY REPORT.

BY JOHN C. MUNRO, M.D.,
OF BOSTON, MASS.;
SURGEON-IN-CHIEF CARNEY HOSPITAL.

Of the 146 cases of operation for lesions of the stomach that I can report, we know the end results in 134, or 91 per cent. As a large majority of the operations have been done within the last two years by Dr. Bottomley and myself at our clinic at the Carney Hospital, the use of the term "end result" is naturally a restricted one. We cannot yet give a definite reply to the query as to the frequency of the relapse of ulcer at a period remote from the time of operation. That must be left for surgeons of larger experience. From the reports of other clinics and from an inherent feeling that has grown while noting the progress of our earlier successes, we believe that the risk of a relapse is small. Be that as it may, the question of immediate and total relief from distress, vomiting, bleeding and other untoward symptoms is important enough to merit consideration. So far as our results go in this respect I will give a brief report alluding to a few interesting problems only. At some later day a more critical analysis will be made, but this will necessitate a long and tedious paper. All of our 146 operated cases are included in this preliminary report. About fifty suffered from cancer, the remainder from benign lesions. The general profession is practically agreed as to the treatment of cancer of the stomach, but I cannot forego the temptation to emphasize a few considerations that have been forced upon us by our experience, and therefore I will take up this class first.

In 14 cases of cancer and sarcoma we were limited to exploration, the disease having so far advanced that either a gastro-enterostomy was not advisable, or else it could not be performed if indicated. Many of these patients had been under medical treatment for weeks or months. Some were of the fulminating type and hopeless from the start. I think it is fair to say that the interference made practically no difference in the progress of the disease in the majority of the patients. The diagnosis, except in one case of sarcoma, was practically settled before the abdomen was opened. Information as to the possibility of prolonging life or of alleviating distress was the main object. It can be definitely affirmed, in the light of our experience with other malignant cases that this method of inquiry is just and humane. No one can ever tell the condition of the viscera without opening the abdomen, and one not infrequently may be greatly astounded at the operative revelations. In three desperate cases a jejunostomy was done to avert death from starvation. In two of these it was too late even for temporary relief. The third patient, however, obtained comfort enough to justify the undertaking.

As to the moral effect from an operation that gives no mechanical benefit this is hardly the place to argue. A few were distinctly relieved of their depression, while their morale underwent the extraordinary change that we occasionally see following operations that accomplish nothing. This, nevertheless, should not be used as an argument in dealing with disease of this gravity.

*Anastomosis in Cancer.*—This has been done in 25 cases, usually with the Murphy button. In five the operation probably hastened death by a few days. I doubt if it made a greater difference. These few people had come to us usually from a distance, nearly dead from starvation, pain and vomiting. Operation was done with the clear understanding on the part of the patient as well as ourselves that the outlook was desperate.

When we come to the less hopeless class, where the disease spreads more slowly and yet where it has progressed too far for radical excision, we have obtained such satisfactory results, relatively speaking, of course, that we feel more and more encouraged in our efforts to mitigate the inevitable distress.

Of the 20 cases remaining, we know the end result in 19. Two lived for over a year; nine lived from a month to a year, and the remainder died within a month of the operation, but not because of operation, so far as we can honestly estimate. The length of life is not the only criterion by which we should estimate the value of this operation. All these patients are going to die, and they are going to die within a few months or weeks unrelieved by any known medical treatment. As a matter of fact, most of our cases had been through faithful and varied forms of medical treatment. We have failed to see a single individual that has thus derived a fraction of the benefit that we have given to a majority of our cases. This benefit comes almost at once after the operation, which is practically painless, and confines them to bed for only a few days. Within the week I have received notice of the death of one of our patients, sixteen months ofter gastro-enterostomy, at which time we found an inoperable growth with metastases. Following the operation he was able to eat three meals a day and worked up to within five weeks of his death, which came from a general malignant infection.

Another patient was doing heavy work in a furniture van a year after operation. Still another, who had been refused operation elsewhere because of a diagnosis of malignancy, and who was practically bedridden, I occasionally see now, nine months after gastro-enterostomy, doing light work and eating any reasonable food in place of the milk diet on which he had lived for months, and which he regularly vomited after it had become so foul that it could not be retained on his stomach.

*Gastrectomies.*—We have ten pylorectomies or partial gastrectomies. When the operation has

been done for cancer we have felt reasonably convinced that all of the growth could be removed. A wider experience probably will encourage us to undertake operation in cases that look less encouraging because the experience of the Mayos and Mikulicz, as well as our own limited observations teach us that the risk to life is much smaller than would seem probable. Two of our earliest cases died as a result of poor technic. Of late, by adopting the operation as perfected by the Mayos, the patient suffers practically no shock. In several cases the complete operation has been done because at the time it was impossible to determine whether the tumors were malignant or not, and excision seemed the conservative undertaking. We have followed all of our cases and they are all satisfactory, especially when compared with their previous condition. They have to learn to forego large meals, a seemingly difficult task because the pleasure of eating the ordinary foods, so long denied to them, runs away with their discretion.

In four cases of cancer, three of them being done eight, six and four months ago, the results are good so far. The fourth case is still in the hospital. The patient on whom we operated eight months ago recently returned for closure of the ventral hernia following infection of the parieties at the time of operation. He has proved interesting in several ways. The anastomosis, made with a Murphy button, had contracted to about the diameter of a pencil, while the button itself was in the stomach. After its removal the anastomosis was enlarged to a satisfactory size. Most careful search failed to show any possible trace of malignant growth in any part of the abdomen. The significant lesson that we may learn from our limited experience is the fact that of fifty cases of malignant disease of the stomach, not including a number of patients upon whom we have refused exploration, only four have come to us in time for radical excision. Allowing for timidity on our part in choosing a palliative operation, where perhaps excision would have been justified, it is still a most lamentable fact that somehow or other these patients do not seek surgical aid early enough to benefit from the only known therapy that can give them a chance of permanent relief.

*Ulcers.*—For benign lesions we have done 90 operations, not including the excisions. Of these we know the end results in 79, having examined most of the patients personally within a few weeks. They have been followed closely for the purpose of getting at the facts, and to aid us in adopting one or another of the various methods of technic. We do not feel that the ideal method for the routine case is attained, but the results are sufficiently encouraging to stimulate us to carry on the operative treatment of benign lesions of the stomach that fail to yield satisfactorily to medical treatment.

Most of our ulcer cases have been partially relieved by medical treatment for periods extending over months or years, or else they have been cured one or more times at various intervals by the same means. Rarely upon opening the abdomen do we, or the medical expert who has studied the case most conscientiously for many months, find what we expected. There are a few typical cases that come up to our anticipations, but we have grown so accustomed to startling revelations that we begin operation ready for any possible combination of circumstances. It is true our methods of diagnosis are crude. We have derived very little help from chemical and bacteriological examination. Palpation, forced distention, etc., are of help to a certain extent. The various finely proportioned test meals we have abandoned, preferring for practical purposes to give our patient a good square meal, such as should be enjoyed with a healthy stomach, and note the result at the end of a few hours.

The general history and condition of the individual, plus the various evidences of bleeding, stasis, fermentation, distress, etc., make up the sum total as to whether the case is surgical or not. At present I can recall only one patient in whom we have found nothing to warrant more than exploration. In some we find gall-stones or adhesions or growths in the neighboring organs where the symptoms indicated gastric disease. Such cases are legitimately surgical and in none of them could definite knowledge be obtained without operation. Considering the fact that some researches that are being carried on on the mucous membrane from the stomachs of our patients, show that we have still much to learn of the normal histology of the stomach wall, it is not unreasonable to be skeptical of the clinical methods of elucidating the conditions in pathological stomachs. Some day an exact diagnosis may be made by the internist, but to one who has seen a few score of stomachs at operation there is need of a large amount of credulity to believe that even an approximate diagnosis can be made without visual and tactile examination. Even with certain growths under our eyes and fingers, it is as impossible to distinguish a benign from a malignant tumor as it is in certain tumors of the breast.

To consider first some of the minor procedures which we have used. In three cases we shortened the gastrohepatic ligament for ptosis. One patient, as might be anticipated, has not been relieved. The two not heard from are probably in the same condition. In two patients with perigastric or periduodenal adhesions, the freeing of these bands resulted in cure. One pyloroplasty for probably syphilitic stenosis was well long after the operation. Of six perforations, three recovered. Here operation is so clearly indicated that it need not be discussed.

Of Finney's operation of gastroduodenostomy we had great hopes, but we have been forced most reluctantly to give it up because we could not obtain as satisfactory results as we had expected, and because it is limited in its scope.

We have followed ten of the twelve patients, and of these only five can be pronounced well. One case died of inhalation pneumonia, and one case, in which we used Kocher's method, died of hemorrhage. Both of these deaths should not be placed against the method but against the operator. Of the various methods of anastomosis, whether by button or by suture, the mortality can be placed so low that the danger is far less than the danger of allowing many acute or chronic ulcers to persist without interference.

In our early experience, when we used the button for anterior anastomosis, our results were bad, but mainly because of the type of case furnished. One acute hemorrhage continued to bleed and died in three days. Two patients died of tuberculosis later. In none of these could the method necessarily be condemned. We then tried the posterior anastomosis by various methods, using preferably that described as Moynihan's, with the long loop. The results were better, but not perfect. Of 27 done by this method we have results in 25. Twelve are well. One died of rupture of an aortic aneurism; one, a congenital stenosis at the eighth week, died as a result of prolonged starvation, and a third died at the end of two weeks, from vicious circle. This leaves ten in whom the benefit was not as satisfactory as desired because of more or less regurgitation of bile. In four of these we have done a second operation, by which the entrance of bile into the stomach has been shut off with marked improvement.

Moynihan has recently advocated the short loop. We tried this about ten months ago in six cases. One case we have lost trace of. Four are now cured, one of them being a congenital stenosis. But one patient has had as troublesome regurgitation as any of our cases, hence we have[1] hesitated to adopt the short loop as a routine. In eleven patients where we have used the long loop together with an entero-anastomosis and obliteration of the ascending limb, we have had seven complete cures (one being preceded by a temporary dysentery), and one death, the cause not being determined at autopsy. Three patients have been lost sight of. This operation is mechanically satisfactory, but it is complicated and long, so that recently we have used the method of Roux, or a modification, in all our cases. The immediate results are all that could be desired. We have seen no regurgitation of bile, the shock is no greater than with the Moynihan operation, but it is more difficult, and there is a little more chance for operative infection. We have made an anastomosis in a few cases of profound anemia due to acute or prolonged hemorrhage. The results have been better in the acute cases. In the latter class I include only those patients that are presumably bleeding to death at the time of operation. We have operated, as well, on a number during a period of active hemorrhage, but in these the operation has not been done primarily for hemorrhage. In one case of acute hemorrhage with recovery, the hemoglobin was estimated by Tallqvist's method as low as 15 per cent. In two cases of profound chronic anemia an ulcer was found in one, the patient dying a month later of pernicious anemia. Characteristic blood changes were found only a short time before death. In the second case a pernicious anemia could not be determined, but an hour-glass stomach was found. The operation made no apparent difference in the progress of the disease, as he died of anemia about a week later. He had been steadily losing ground under medical treatment for twelve years, and two years before we saw him he had been refused operation elsewhere on the basis of the chemical findings. His hemoglobin was estimated as low as 15 per cent. also.

In all of our anastomoses we have learned by experience that caution in diet must be exercised for some months after operation. Within a week patients, as a rule, are on a general diet, a diet that has often been denied them for months or years. The temptation, as soon as they are released from supervision, is to overeat and to indulge in foods that would tax a gourmand. They then have a return of distress and perhaps vomiting, and are alarmed and disappointed. By regulating their ways and times of eating, however, they rapidly return to normal, and this condition once established, we have had none in whom there seems to be any inclination to relapse of the ulcer or its symptoms. Moreover, in the cases on whom we have operated a second time we have found no evidence of relapse of the ulcer. To be sure we cannot point to immunity for longer than two and a half years, but the contrast in the patient's condition for this brief period with that which previously obtained under medical care is most encouraging. Even in the cases partially relieved the condition for the most part is far preferable to that which existed before operation. These patients complain perhaps of occasional bilious regurgitation, or of left-sided pain, the cause of which we can only conjecture, or of distress after some particular kind of food. One patient, for instance, can eat anything with impunity except fish; to another some particular kind of fruit or meat may be debarred, but on the whole they are not more peculiar in this respect than many normal individuals.

As intimated at the beginning, this is only an imperfect review of our cases. Many most interesting questions have not been alluded to, but I think that in conclusion I can state conservatively that the surgical results in both malignant and benign cases are steadily improving and correspondingly encouraging; that in malignant or chronic benign ulcers and its sequelæ medical treatment must yield to surgery; that this is true of some forms of acute ulcers; that although the technic has improved to such an extent that the results are better than under medical treatment.

[1] Since reading this paper we have returned to the short or "no loop" method.

nevertheless, the ideal method has not been definitely established. This is the next important problem for surgery to solve. Furthermore, only an approximate diagnosis in surgical cases can be made by medical tests, and until such tests have been proven infallible, it is the duty of the physician to seek surgical advice in every case in which there is a possibility of benefit to be derived from mechanical means.

## THE LARYNGEAL COMPLICATIONS OF TYPHOID FEVER.

BY RICHARD H. JOHNSTON, M.D.,
OF BALTIMORE, MD.;
ASSISTANT SURGEON AND PATHOLOGIST TO THE PRESBYTERIAN HOSPITAL; DEMONSTRATOR OF LARYNGOLOGY IN THE UNIVERSITY OF MARYLAND, SCHOOL OF MEDICINE, BALTIMORE.

A CAREFUL search of the literature shows the records of comparatively few cases of larynx complications in typhoid fever. This scarcity is probably due to the fact that few cases of the disease are examined with the laryngoscope. The attention of the physician is directed to other organs more directly involved in the diseased process and the sensorium of the patient is so benumbed that he seldom complains of throat lesions. Another reason for the scarcity of literature on the subject is the fact that few text-books on medicine lay any stress on these rather obscure complications. Osler, in his excellent work, describes briefly the different lesions that may be found in the larynx, but most of the other books barely refer to them. That these complications deserve more than a passing notice, is evidenced by the fact that occasionally they have serious consequences and the most heroic treatment has to be resorted to in order to save the life of the patient. In looking through the literature one finds cases of ulceration, infiltration and perichondritis reported where tracheotomy had to be performed to relieve the symptoms of stenosis of the larynx. In such cases only the promptest treatment can save life. When it is realized that such complications are most liable to occur when the patient is delirious and can give us no assistance in the diagnosis, the importance of a careful examination in all cases presenting laryngeal symptoms is obvious. Fortunately for both patient and physician, the larger number of such complications tend toward recovery. Even when pronounced symptoms, as hoarseness, etc., supervene, the patients usually recover without treatment.

Lüning names Boyle as the first author who wrote about disease of the larynx in typhoid fever (1808). He reported two cases which in the convalescence from a "severe putrid fever" were attacked with stenosis of the larynx. Both patients died, one shortly after tracheotomy. At the autopsy it was found that one patient had a perichondritis, the other a submucous laryngitis without involvement of the cartilage. In 1823 Joseph Frank cited from Pommer and Horn the occurrence of inflammations in the larynx and trachea in typhoid fever. Bouillands (1825) related cases of larynx complications. In 1829 Louis published clinical manifestations which he had observed in the larynx and in the same year Elster recorded a case of perichondritis. From this time on a number of writers —Chomel, Hasse, Rokitansky, Momeret, Fleury, Jansen, Dittrich, Rheiner, Kern and Strohmeyer —described cases of larynx complications. In 1876 Keen collected from the literature 169 cases of laryngeal complications in typhoid fever. Eight years later Lüning was able to find 213 reported cases, 14 of which were personal ones. In 1898 Keen published his classical monograph, "The Surgical Complications and Sequels of Typhoid Fever." This monograph is probably the best exposition of the subject under discussion in the English language and is not surpassed by the writings in foreign tongues. He tabulated in this work 221 cases of laryngeal complications which had been reported up to the year 1896. It will be noticed that only eight cases were reported between the years 1884 and 1896. The scarcity of cases during this period was probably due to the improved methods of treatment instituted in typhoid fever. From 1896 to May, 1903, Dupuy found 34 additional cases which, with one observed by himself, brings the grand total for not quite one hundred years to 256 cases. If now we review the records of autopsies in typhoid fever, the figures, to say the least, are surprising. Zülzer found that 20 per cent. of all patients dying of typhoid fever have ulcers in the larynx. Heinze, in 113 autopsies found 13 ulcers in the larynx (11.5 per cent.). In 1032 sections in which the complication was known, diphtheritis was present in one per cent., ulceration without cartilage disease in 5.4 per cent, perichondritis in 5.9 per cent. The greater the mortality in an epidemic, the more frequent are the complications.

*Etiology.*—The opinions of various observers are greatly at variance as regards the cause of the complications. As far back as 1842 Rokitansky considered the involvement of the larynx "as a true metastasis of the poison." In 1894 Shulz claimed to have demonstrated both in sections and in cultures from the swollen lymphoid nodules the typhoid bacillus. His results have been confirmed by Cornil, Ranvier and W. Williams. Such observers as Lucatello and Klebs are of the opinion that the larynx affections are true typhoid lesions identical with those of Peyer's patches. These lesions are held by some to be so characteristic that in doubtful fever cases the diagnosis may be made with a high degree of certainty from the appearance of the ulcers. Bayer diagnosed typhoid fever from the appearance of certain ulcers on the faucial pillars. Gerhardt's case of "laryngotyphoid" showed at the onset typical typhoid ulceration in the larynx, the other symptoms of the disease appearing in regular order. Watson Williams reported a case in which "enteric fever com-

menced with the laryngeal affection," the larynx being the seat of typical typhoid lesions. The typhoid bacillus was found in cultures taken from ulcers on the arytenoid cartilages. The autopsy confirmed the diagnosis. In some cases the specific bacillus cannot be demonstrated—in such cases the various pyogenic organisms are found in abundance. In the early part of the last century the different complications were believed to be due to secondary diphtheritic infection. Murray and Robertson have each reported fatal cases of Ludwig's angina occurring in the third week of typhoid fever. Robertson's case was due to a pure streptococcic infection. Some observers claim that dorsal decubitus is responsible for the formation of the various laryngeal lesions. Thus Rühle calls the ulcers decubital ulcers. He assumes that they are formed by a pulling or squeezing action, particularly on those surfaces which rub together, as the vocal processes, the edge of the epiglottis, etc. The epithelial covering is rubbed off and the gateway opened for the entrance of pyogenic organisms. Virchow believed there was a mucous membrane necrosis as in diphtheria. Schrötter and Landgraf agree with him. Fraenkel doubts the etiological importance of the typhoid bacillus in the formation of ulcers; he believes they are caused solely by staphylococci. Eppinger claims that the affected areas behave like Peyer's patches—there is first infiltration followed by necrosis; then the ulcer forms in which the cocci find a resting place.

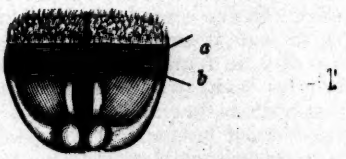
The forms of the laryngeal complications of typhoid fever are catarrh, erosions, infiltrations, ulcerations, diphtheritis, perichondritis and paralyses. The catarrh localizes itself in certain parts of the larynx: the inner surface of the arytenoid cartilages, the adjoining parts of the vocal cords and the epiglottis. The process may lead to desquamation of the epithelium, erosions or ecchymoses. Subjective symptoms may or may not be present—there may be a feeling of dryness or tickling in the throat; sometimes there is hoarseness, sometimes aphonia. Cough is slight or entirely absent.

Erosions, according to Eppinger, occur particularly along the lateral borders of the epiglottis. At the bottom of the erosion can be seen the exposed edge of the cartilage. He explains their formation by an edematous swelling which causes a bursting of the epithelium.

The infiltrations occur as circumscribed and diffuse. The circumscribed forms are seen at the base of the epiglottis, on the ventricular bands, the inner surface of the arytenoids and the anterior commissure. They present nodular swellings of soft consistence and homogeneous appearance and consist of masses of cells similar to lymph cells with one, two or three nuclei. The fresh nodules correspond exactly to the swelling of the follicles in the small intestine. The diffuse forms appear on the mucous membrane of the laryngeal surface of the epiglottis, the inner surface of the arytenoids or on the ventricular bands as soft, succulent, whitish swellings. They are easily differentiated from the healthy membrane. Histologically they are like the nodular forms and Eppinger thinks they are simply diffuse, nodular forms. In these lesions the lymph follicles and the tissue between are infiltrated. Both forms of infiltration can give rise to ulceration. Ulcerations are formed by the breaking down of the infiltrations. They have a tendency to spread in all directions, particularly as regards depth, in which case they expose the cartilage. The following case, which was seen by the writer, is a good example of infiltration and ulceration occurring in typhoid fever.

*Case.*—W. F. H., white, twenty-four years old, entered the University Hospital September 8, 1904, with a well-marked case of typhoid fever. On the twelfth day of his illness, he suddenly became hoarse and gradually grew worse until he was unable to speak above a whisper. One week later, at the request of Dr. Gichner, who had charge of the patient, I made an examination of the throat and larynx. At this time the patient's mental condition was fairly good, so that he was able to answer questions. There was some irritation in the throat but no pain. A slight cough was present. The examination had to be made with the patient in the prone position and in a large ward where is was impossible to exclude daylight. The pharynx was slightly congested. The epiglottis was very much swollen posteriorly on both surfaces; the swelling had the appearance of a typical tuberculous infiltration with the exception that it was perhaps somewhat darker in color. In the center of this swelling, along the edge of the epiglottis, the mucous membrane had disappeared and the cartilage was clearly visible as a white rim. The infiltration of the part had broken down and had formed a linear ulcer along the entire posterior edge of the epiglottis. The anterior part of the organ, where it was attached to the base of the tongue, was normal in appearance (Fig. 1). The arytenoid cartilages were slightly swollen. The vocal cords were red and thickened; on phonation they approximated before and behind, leaving in the middle area a decided space which accounted for the the loss of voice (Fig. 1). There was also a decided relaxation and flabbiness of the cords. The patient was advised not to use his voice, and an oily spray containing camphor and

Fig. 1.




*a.* Linear ulcer. *b.* Swelling of Epiglottis.

menthol was used in the larynx. The throat was examined every other day to watch the progress of the complication and to prevent, if possible, any more serious trouble that might arise. At no time were there symptoms of stenosis. The aphonia persisted for eighteen days when the voice began gradually to clear up. The paralysis of the internus completely disappeared and about the first of December the patient was delighted to find that he could once more talk with a perfectly normal voice. The condition of the epiglottis had not pursued such a favorable course. The ulceration was slow in healing and the infiltration was present some time after convalescence had been established. At the last examination the epiglottis was still somewhat swollen; on the right posterior edge there was quite a prominent swelling while on the left the tissue appeared as if bitten off. The base of the ulcer had healed and its position was indicated by a narrow furrow (Fig. 2). The diagnosis of the conditon was infiltration and ulceration of the epiglottis, followed by perichondritis, which had resulted in a destruction of the left lateral cartilage, and paralysis of the thyro-arytenoideus muscles. No cultures were taken from the ulcer and it is not known whether

Fig. 2.

*a.* Swelling of Epiglottis.

the typhoid bacillus was present or not. Fortunately for the patient the perichondritis was limited to the epiglottis. Had the process attacked the larynx proper, it is highly probable that the result would have been disastrous. As is usual in such cases, the patient did not complain of pain. A similar condition in tuberculosis would have required the use of cocaine to relieve the sufferings of the patient. On account of the rarity of the complication the case is interesting.

Diphtheritis in typhoid fever is probably not true diphtheria. It produces only slight symptoms and is usually recognized accidentally as white patches in different parts of the larynx. Eppinger, who has studied the condition carefully, claims that these patches are not exudative, but necrotic, epithelial masses with heaps of micrococci between. The cocci penetrate the tissues, cause necrosis, and in this way form "septic ulcers" which differ from the true infiltration ulcers in that they are slightly undermined, soft and surrounded by healthy mucous membrane. Septic ulcers can extend to the cartilage, which may become carious. They can occur with the typhoid ulcers and cause great deformity—the epiglottis can be entirely destroyed. Ulcerations of the larynx heal with or without deformity. In the latter case cicatricial bands may form between different parts of the organ as the vocal cords or a vocal cord with a ventricular band, etc.

Perichondritis with necrosis can affect any or all cartilages. In 59 cases Eppinger found the thyroid cartilage diseased twice, the thyroid and cricoid five times, the thyroid, cricoid and arytenoids three times, the cricoid 22 times, the cricoid and arytenoids 14 times, the arytenoids nine times. The cricoid was sometimes entirely absent.

Edema of the larynx occurs with the ulcerations and perichondritis.

It is accompanied by excessive submucous swelling, which can be so acute as to cause death before the arrival of medical assistance. Dupuy's case was typical of this condition. The patient, twenty years old, had a severe attack of typhoid fever. One month from the beginning of the attack, hoarseness and labored breathing suddenly appeared. The symptoms gradually grew worse until there was a marked stenosis. The mirror showed diffuse and symmetrical tumefaction over the entire surface of the larynx. The vocal cords were fixed in the middle line and, during inspiration, separated only near the posterior part. The glottis was reduced to a mere slit. The epiglottis was normal. A spray of adrenalin, 1 to 1,000 into the larynx, made the breathing more comfortable for twelve hours. The stenosis again became marked and the vocal cords were now seen to be firmly fixed in the middle line from an evident anchylosis of the crico-arytenoid articulations. Tracheotomy had to be performed to save life.

Paralyses of the muscles are comparatively rare. One muscle or all may be affected.

The most dangerous complication is stenosis, which may be caused by edema in acute disease or after recovery through thickened tissue and deformities. The subjective symptoms of laryngeal complications are slight. Sometimes the patient complains of dryness or soreness of the throat, referred to the larynx, and the voice is rough and hoarse, or even aphonic. The diagnosis of the kind of complication without a laryngoscopic examination is practically impossible.

The prognosis of the different affections has been sufficiently emphasized in the descriptions of the various complications.

*Treatment.*—Most of the conditions tend to recovery. Expectant treatment is all that is necessary in the majority of cases. The treatment of the fever is of first importance. The examination of the larynx should be resorted to from time to time where any trouble is suspected. A mild spray of an oily solution of camphor and menthol and the non-use of the voice are all the requirements in most cases. Where ulceration or perichondritis is present, submucous laryngitis must be watched for, and should it arise, energetic treatment instituted at once. Sprays of adrenalin, the swallowing of small pieces of ice and perfect quiet may tide the patient over. If marked symptoms of stenosis make their appearance, tracheotomy promptly performed is undoubtedly

the best means of saving life. Where permanent adhesions have formed as the result of the inflammatory process, the tracheotomy tube may have to be worn indefinitely. From what has been said above, the importance of a careful laryngoscopic examination in all cases of typhoid fever showing laryngeal complications does not need to be emphasized. Prompt diagnosis and treatment of the milder complications may prevent the disastrous results arising from the more serious affections of the larynx. It is no doubt true that if more attention were paid to the examination of the throat, the number of the laryngeal complications in this tedious disease would be materialy increased in the literature. We cannot form a true estimate of the bearing of these complications on the prognosis until more complete statistics are obtainable.

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## REMARKS ON ROTARY LATERAL CURVATURE OF THE SPINE.

BY LEONARD W. ELY, M.D.,
OF NEW YORK.

This common deformity is the cause of considerable confusion, especially as regards its treatment. A few practical conclusions based on a rather extended experience may be of interest.

*Occurrence.*—It is usually supposed to be much more frequent in females. This is doubtful, but for cosmetic reasons the vast majority of patients presenting themselves for treatment is of the female sex. The deformity is generally discovered about the time of puberty, often by the dressmaker, who finds some asymmetry in the hips or shoulders.

*Cause.*—As to this we are usually in the dark. It is not caused by a short leg or by adenoid growths. Sometimes it follows an empyema, a wry neck, or an anterior poliomyelitis of the trunk muscles. Rarely it is seen with rickets. Usually no cause can be found. When I had the class at the Vanderbilt Clinic I followed up all sorts of clues, had eyes corrected, drilled out noses, and at last made up my mind that for the present we must put the deformity in the category with varicose veins, hernia and flatfoot, caused by the habit of the human animal of standing on its hind legs.

*Prognosis.*—Bad, as regards the prospect of ever having a straight spine. When once a rotation has taken place, we cannot remove it by any system. We can say that, with proper treatment the deformity will probably grow no worse, and that it may be somewhat improved, but that is all. Systems that promise more are mostly fakes, some with a basis of common sense, some without.

*Treatment.*—The man who makes his patients stand and walk correctly, persevere, and infuse enthusiasm into their work, will get better results than he who, neglecting these, puts his trust in the most elaborate exercises.

Two general methods of treatment may be chosen—apparatus and exercises. A very young patient may be put up in snug plaster-of-Paris jackets during the period of growth, that is, for six or eight years, and be made much straighter. In the severer cases, in older children, a brace or a plaster corset may be of some service, perhaps in conjunction with exercises. I prefer the plaster corset, applied when the patient is suspended, with her trunk pushed into the best possible position. It is then slit up the front, trimmed and furnished with lacings. It should be worn during the periods of inaction, especially during school hours.

For the mild cases and for those of moderate severity, our main reliance is on exercises, frequent and long continued. About these there is nothing mysterious, nothing peculiar, abstruse or complicated. No one possesses anything exclusive. This fact should be held firmly. The main objects are to make the spine flexible, to strengthen the back muscles, and to teach the patient control over them. This last is, strange to say, often difficult. Following is my general routine, varied somewhat to suit special cases:

1. *Standing.*—The proper position is with head up, chin down, shoulders back, chest out, abdomen in, buttocks in, weight borne on the balls of the feet, the heels "tapping" on the floor, and with the deformity corrected as much as possible by voluntary effort. Teach the patients to "make" a hip where one is lacking and to depress the high shoulder.

2. Standing in the proper position, with the heels against the wall, the patient then endeavors to touch the wall with the small of her back; that is, to make the back as flat as possible.

3. *Bending.*—Patient leans forward with knees extended and touches the floor with her fingers. She then resumes the correct position and rises off her heels. This should be repeated 50 or 100 times daily.

4. *Rocking.*—With heels on the floor, hands on the hips and elbows out straight, the patient swings as far as possible from side to side.

5. *Twisting.*—With hands clasped behind her head, the patient twists around first to one side, then to the other.

6. *Dipping.*—With trunk and head perfectly erect and with hands on hips, the patient flexes her knees and hips and sinks directly downward. The tendency with this is almost always to flex the trunk also.

7. In this the hands and arms are stretched out in front, with palms together, and are then brought violently backward in the horizontal plane as far as possible.

8. *Swinging.*—This reminds one of a patent top spinning on a string, and is a combination of 3 and 4. With the hands on the hips, the whole trunk rotates on the pelvis as a fixed point, the head describing a more or less complete circle.

9. *Table Exercise.*—The patient lies prone on a table, with trunk projecting over the edge, and with feet and legs held down by the instructor.

She then flexes and extends her trunk as much as possible.

Other exercishes may be devised to suit special cases, but these will be found useful for the general run. The patients are taught to walk properly, not to mince or to strut. They are provided with rings and a horizontal bar, and are encouraged to fence, usually with the left hand, and to swim. They must be made to understand that the final results depend largely on themselves, and by ridicule, reproofs, exhortation and encouragement must be spurred on to persevere. In most of them a pride of personal appearance can be awakened that will come strongly to our aid.

451 West End Avenue.

## THE EFFECT OF INTESTINAL ANTISEPSIS ON THE EXCRETION OF HIPPURIC ACID IN THE URINE.*

BY JACOB B. PRAGER, M.D.,
OF NEW YORK.

IN 1824 Wohler[1] furnished the first example of a true synthetical process which occurred within the animal organism. He showed that when benzoic acid was introduced into the stomach it appeared as hippuric acid in the urine.

This synthesis may be expressed by the following equation:

$C_6H_5COOH + NH_2CH_2COOH = NH_2(C_6H_5CO)CH_2COOH + H_2O$.

Benzoic acid + glycocoll = hippuric acid + water.

Gonnerman[2] has shown that gelatin on decomposition yields a large amount of glycoll (9 per cent.); Fischer found 16 per cent., and Levene[3] found in gelatose or gelatine proteoses, whose elementary composition does not essentially differ from that of the gelatin, a still larger amount (20 per cent.). In addition it yields amido acids such as leucin, aspartic acid and glutamic acid, also phenylacetic and phenylpropionic acids, but no tyrosin, indol or skatol, in which it differs from the proteids. Maly[4] has shown that gelatin on decomposition also yields (besides the bodies already mentioned) considerable quantities of benzoic acid.

The purpose of the following experiments is to determine:

1. What effect the feeding of gelatin (which on decomposition yields both benzoic acid and glycocoll) has on the excretion of hippuric acid in the urine.

2. The effect on the excretion of hippuric acid when there was putrefaction going on in the intestinal canal.

3. The effect on the excretion of hippuric acid when the intestinal canal was made antiseptic by calomel.

4. The effect of intestinal antisepsis upon the excretion of nitrogen.

5. Lastly, what effect gelatin had on the burning of tissue in the body.

Before going on with the experiments, a short history of hippuric acid would not be out of place. Hippuric acid was so called by Liebig because he first found in in the urine of horses. It is well known that hippuric acid occurs in large amounts in the urine of herbivora and only in small amounts in the urine of carnivora. This large amount of hippuric acid in herbivora may be partly explained by the fact that vegetable foods contain large amounts of aromatic substances, such as toluol, cinnamic acid, and hydrocinnamic acid, which, upon oxidation and chinic acid upon reduction, may be converted into benzoic acid within the organism; this benzoic acid so formed combines with the glycocoll, thus forming hippuric acid.

Salkowski[5] found hippuric acid in the urine of starving dogs, as well as in the urine of dogs fed exclusively on a meat diet; this is explained by the fact that phenylacetic and phenylpropionic acids are formed in proteid putrefaction, and these are subsequently burned to form benzoic acid which combines with glycocoll to form hippuric acid.

*Where is Hippuric Acid Formed?*—This question has been made the subject of numerous investigations, but as yet there has been no positive proof as to the exclusive place for this synthesis. Jaarsfield and Stokvis[6] maintained that the synthesis of hippuric acid occurred not only in the kidney but also in the intestinal canal; Bunge and Schmiedeberg thought that the exclusive place for the synthesis of hippuric acid was in the kidneys.

C. Lewin[7] found that the excretion of hippuric acid in gout and diabetes is normal; in appendicitis he found nearly two grams increase; in fever he found a decrease, and in kidney disease he found an increase, never a decrease; this is a point against the theory that the kidneys are the only seat of the formation of hippuric acid.

In intestinal putrefaction, and in all intestinal diseases, hippuric acid is always increased.

In estimating the amount of hippuric acid I used the method of Salkowski and Blumenthal, as this was found to be most reliable.

*Experiment I.*—In this experiment a bitch weighing 10 kilos was starved for four days. On the third day her bladder was washed out with warm sterile water. At 9 A.M. on the third day of starvation she was catheterized, and both hippuric acid and nitrogen determinations were made. We always used twenty-four-hour specimens of urine throughout the whole series of experiments.

After the four days of starvation, the dog was fed on gelatin for three days. She received 50 grams the first day (25 grams at 9 A.M. and 25 grams at 5 P.M.), 50 grams the second day, and 25 grams the third day. The gelatin was dissolved in 250 c.c. of water, and this was passed into the stomach through a catheter.

After the introduction of 50 grams of gelatin

* From the Chemical Laboratory of the New York University and Bellevue Hospital Medical College. This thesis was awarded the William T. Lusk Memorial Science Prize in 1904.

it was noticed that the urinary nitrogen increased.

Fifty grams of gelatin contains 6.44 grams nitrogen, as determined by the Kjeldahl process; and there was 6.95 grams nitrogen excreted, showing that some of the body proteid was burned in addition. The amount of proteid burned in the cells depends upon the constitution of the fluids feeding the cells. This has a direct bearing on the feeding of gelatin, because Voit in his experiments showed that no matter how much gelatin was fed it was completely burned and some of the body's proteids in addition; therefore gelatin never builds up new tissue, although it may to a large extent protect the body proteid from decomposition. It is also evident that no matter how much gelatin be fed the tissue proteid continues to be largely destroyed. This is shown in Experiment I, second and third day feedings, and Experiment II, third and fourth day feedings.

After the three days of gelatin feeding the dog was again starved for three days to see the effect on the excretion of hippuric acid and nitrogen. On the first day after feeding a marked drop in the excretion of nitrogen was noticed. This is due to the following: It is well known that during the first period of starvation, the elimination of nitrogen is greatest, and the quantity of the same depends essentially upon the amount of proteids in the organism, and the nature of the food previously taken. The richer the body is in proteids from the food previously taken the greater is the elimination of nitrogen during the first days of starvation. The rapidity with which the elimination of nitrogen decreases in the first days depends also (according to Voit) upon the proteid condition of the body. It decreases more quickly, that is, the curve of decrease is more sudden during the first few days of starvation, as a rule, the richer in proteids the food was, which was taken before starvation. This is apparent from the following experiments which I made, showing four starvation periods. In Experiment I in the third and fourth days of starvation the nitrogen has reached its lowest limit, which after the introduction of 125 grams of gelatin, this being given in divided doses, we see in the first day of starvation following the feeding a marked and sudden decline in the nitrogen from 6.99 grams to 1.84 grams.

In Experiment II, Table II, we notice in the starvation period previous to the feeding a gradual decline in the elimination of nitrogen. But after feeding 150 grams of gelatin the nitrogen drops from 7.18 grams (last day of feeding) to 1.76 grams (first day of starvation after feeding). After this sudden drop there is a gradual diminution in the excretion of nitrogen. The amount of hippuric acid excreted is proportionate to the amount of gelatin fed. In starvation the amount excreted is practically the same throughout the whole experiment.

*Experiment II.*—In contrast with Experiment I the dog was fed on a mixed diet for a period of seven days; this feeding was followed by a period starvation lasting six days, and on the last four days of this starvation period hippuric acid and other determinations were made.

The dog was also given one-fourth grain of

Experiment I—Table I. *Dog Weighing 10 Kilos.*

| Date. 1904. | Period. | Amt. of Gelatin Fed. | Urine. Total | Reaction. | Total Hippuric Acid. | Total Nitrogen. | Remarks. |
|---|---|---|---|---|---|---|---|
| Jan. 12 ..... | 3d day of Starvation | ..... | 225 cc. | Acid | 0.1252 Grams | 2.072070 G. | Starvation. |
| Jan. 13 ..... | 4th day of Starvation | ..... | 182 cc. | Acid | 0.1201 Grams | 2.063025 G. | Starvation. |
| Jan. 14 ..... | 1st day of Feeding | 9 A.M. 25 Grams<br>5 P.M. 25 Grams | 446 cc. | Acid | 0.2240 Grams | 6.954068 G. | 50 G. Gelatin Fed. |
| Jan. 15 ..... | 2d day of Feeding | 9 A.M. 25 Grams<br>5 P.M. 25 Grams | 509 cc. | Alkaline | 0.2990 Grams | 6.992920 G. | 50 G. Gelatin Fed. |
| Jan. 16 ..... | 3d day of Feeding | 9 A.M. 25 Grams | 293 cc. | Acid | 0.3152 Grams | 2.910194 G. | 25 G. Gelatin Fed. |
| Jan. 17 ..... | 1st day after Feeding | ..... | 156 cc. | Acid | 0.2408 Grams | 1.848960 G. | Starvation. |
| Jan. 18 ..... | 2d day after Feeding | ..... | 128 cc. | Acid | 0.1433 Grams | 1.814860 G. | Starvation. |
| Jan. 19 ..... | 3d day after Feeding | ..... | 143 cc. | Acid | 0.1226 Grams | 2.046020 G. | Starvation. |

50 grams Gelatin contain 6.44 grams Nitrogen.

Experiment II—Table I. *Dog weighing 8.5 Kilos.*

| Date. 1904. | Period. | Amt. of Gelatine Fed. | Total Calomel in 24 hours. Grains. | Total Urine. c.c. | Reaction. | Total Hippuric Acid. Grams. | Total Nitrogen in 24 hours. Grams. | Ethereal Sulphates. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| Jan. 27. | 3d day Starvation | ..... | 2.5 | 186 | Acid | 0.1850 | 2.608320 | Abundant | Starvation |
| Jan. 28 . | 4th day Starvation | ..... | 2.5 | 140 | Acid | 0.1776 | 2.492620 | Abundant | Starvation |
| Jan. 29 . | 5th day Starvation | ..... | 2.5 | 178 | Acid | 0.1748 | 2.098840 | Moderate | Starvation |
| Jan. 30 . | 6th day starvation | ..... | 2.5 | 143 | Acid | 0.1118 | 2.144880 | Traces | Starvation |
| Jan. 31 . | 1st day of Feeding | 9 A.M. 25 Grams | 4.5 | 250 | Acid | 0.0702 | 2.807500 | Faint Traces | Feeding |
| Feb. 1 .. | 2d day of Feeding | 9 A.M. 25 Grams | 4.5 | 275 | Acid | 0.0558 | 2.971020 | Faint Traces | Feeding |
| Feb. 2 .. | 3d day of Feeding | 9 A.M. 25 Grams<br>5 P.M. 25 Grams | 6.5 | 686 | Alkaline | 0.0338 | 7.056544 | Absent | Slight Diarrhea |
| Feb. 3 .. | 4th day of Feeding | 9 A.M. 25 Grams<br>5 P.M. 25 Grams | 6.5 | 580 | Acid | 0.0546 | 7.181792 | Absent | Diarrhea |
| Feb. 4 .. | 1st day after Feeding | ..... | .... | 182 | Acid | 0.1188 | 1.768556 | Traces | Starvation |
| Feb. 5 .. | 2d day after Feeding | ..... | .... | 143 | Acid | 0.1842 | 1.286353 | Moderate | Starvation |
| Feb. 6 .. | 3d day after Feeding | ..... | .... | 160 | Acid | 0.2018 | 1.461350 | Moderate | Starvation |

In 50 grams of Gelatin there are 6.44 grams of Nitrogen.

calomel every three hours to see the effect of intestinal antisepsis on the excretion of hippuric acid. The ethereal sulphates were tested for in the urine to see whether the calomel was acting. On the sixth day of starvation in Table II we notice that there are only traces of the ethereal sulphates in the urine; this has marked effect on the excretion of hippuric acid, as is shown by the drop in the amount excreted.

The nitrogen is at practically the same level throughout this period of starvation in which calomel is being given, showing that calomel has no effect whatever on the excretion of nitrogen.

After the dog had been starved for six days, she was given 25 grams of gelatin the first two days and 50 grams the succeeding two days. She was also given one-fourth grain of calomel every three hours and two grains with each feeding.

We notice here that as the intestinal canal is growing more and more antiseptic the excretion of hippuric acid is growing less and less; this is seen in Table II, first and second day feedings.

On the third day feeding, we find that the dog excreted 7.05 grams nitrogen, this shows that the dog must be burning her own proteid, because only 6.44 grams of nitrogen were introduced in the form of 50 grams of gelatin. This bears out Voit's theory that no matter how much gelatin is fed, it is completely burned and some of the body's proteid with it.

We also find that on this day the ethereal sulphates have entirely disappeared from the urine. Bauman[8] has demonstrated that when the intestinal canal is free from putrefactive processes the ethereal sulphates then disappear from the urine; this has a marked effect on the excretion of hippuric acid, as is shown in Experiment II, Table I; we notice that on this particular day there was less hippuric acid excreted than on any other day during the experiment, in spite of the fact that 50 grams of gelatin were given. If we compare the result obtained when putrefaction was going on and when the canal was made antiseptic we see a marked difference. In Experiment I, Table I, there was 0.2990 grams of hippuric acid excreted when putrefaction was going on in the intestinal canal, while in Experiment II, Table I, under exactly the same conditions, except that the canal was made antiseptic, there was only 0.0338 grams excreted.

The fourth day feeding is a continuation of the third day; the conditions were exactly alike.

After these four days of gelatin feeding the dog was starved for three days, and the calomel was also discontinued to see the effect it had on the excretion of hippuric acid and nitrogen. On the first day of starvation we see a sudden drop in the excretion of nitrogen; this sudden drop from 7.18 grams to 1.76 grams shows remarkably well the theory of Voit, that the richer the food is in nitrogen given the day previous to starvation the more sudden the drop will be in the excretion of nitrogen during the first few days of starvation.

During these last days of the experiment we find that as the intestinal canal is getting less and less antiseptic, the excretion of hippuric acid increases proportionally; this is due to the increased putrefactive changes going on within the intestinal tract.

*Conclusions.*—From the results of the foregoing experiments we can conclude:

1. That the feeding of gelatin alone increases the excretion of hippuric acid.

2. That when putrefactive changes are increased the excretion of hippuric acid is increased and *vice versa.*

3. That when the intestinal canal was made antiseptic with calomel there was practically no hippuric acid excreted.

4. Intestinal antisepsis has no effect whatever on the excretion of nitrogen.

5. No matter how much gelatin was fed it was completely burned and some of the body's proteid with it.

6. Therefore gelatin never builds up any tissue, although it may to a certain extent protect the body's proteid from decomposition.

I am greatly indebted to Prof. John A. Mandel for valuable aid and suggestions in these experiments.

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## MEDICAL PROGRESS.

### MEDICINE.

**Typhoid Fever in Relation to the Urban and Rural Population of the United States.**—SENECA EGBERT (*Am. Med.*, April 22, 1905) shows by reference to the United States Census Report on Vital Statistics for 1900, and by means of graphic charts illustrating the numerical data of his Report, that typhoid fever is much more prevalent in the rural portions of the country. He attributes this high incidence of the disease to the unsanitary conditions prevalent in the many towns and villages that, being under 8,000 in population, are too small to be classed with the urban, which, therefore, make up a large part of the so-called rural population. He concludes: (1) Popular education as to the causation and dissemination of typhoid fever and similar maladies is especially important in the localities and districts indicated by the charts. (2) It is the duty of physicians to impress upon their typhoid patients the importance and necessity of disinfection measures, not only during but also long after convalescence. (3) The profession should urge improvement, purification and care of public water supplies, and should induce those depending on private or suspicious sources to protect themselves against the danger of infection. (4) The profession should work for uniform and satisfactory registration laws and methods, as these always reflexly foster improvement in sanitary conditions.

**Paratyphoid Fever.**—JOHN NORMAN HENRY (*Am. Med.*, April 15, 1905) says there are two varieties of paratyphoid fever produced by organisms which differ

from each other only in minor cultural peculiarities. These two forms are difficult to distinguish either from one another or from typhoid fever. Of diagnostic importance in paratyphoid fever are the more abrupt onset and the earlier arrival of the acme of the disease as compared with typhoid. Otherwise the symptoms and course of these two affections may be similar, though the course of parayphoid is usually shorter. Spots, splenic enlargement, nose bleed, hemorrhages, and a large number of complications may be present in these allied infections. The question of the possibility of a double infection of typhoid fever and paratyphoid has been raised by the presence in some cases of a double agglutination reaction of about the same degree of positiveness. Before this may be assumed as a certainty, however, it is necessary either to recover simultaneously both organisms from the blood of the patient suspected of being the subject of a double infection, or to saturate out the specific and group agglutinins of one infection and demonstrate the presence of the others. As yet these double infections have not been proved, though the saturation tests have not been applied to any great extent in these diseases. The pathology differs widely from that of typhoid fever, the autopsy findings being largely those of a septicemia. In some cases ulceration of the intestine has been found, but the ulcers have been of dysenteric type and Peye's patches have altogether escaped. The mortality has been placed at about six per cent., being somewhat less than that of typhoid Dr. Henry reports six cases.

**Transient Functional Hemiopia.**—C. J. KIPP (*Journal A. M. A.*, April 22) describes the condition known under this name and sometimes spoken of as scintillating scotoma, teichopsia, ophthalmic migraine, etc. He finds it generally hemiopic in form. The condition is not always described in text-books, but as its first appearance is apt to be alarming to the patient, it is well, he thinks, that the symptoms should be given in detail. Repeated attacks generally result in indifference on the part of the patients. They are often of the nervous type, and frequently have other neurotic symptoms. They are usually in good general health, and are often free from refractive errors, and, in most of his cases, even free from muscular ocular defects. The exciting causes and pathology are not very well known, but Kipp is inclined to believe that in most cases there is a temporary functional derangement of the cells of the cerebral optical mechanism, and he quotes Jolley, who says that in the most frequent hemiopic form the cells of the optic tract or of the internal geniculate body are involved; that the binocular, central and hemiopic scotomata which cross over the median line originate more peripherally, probably in the region of the chiasm; and that the purely monocular scotoma originates in the optic nerve or retina. For treatment he suggests rest during the attack, usually in a recumbent position. He quotes Gower's advice as to the treatment of migraine by correction of any errors in living, by avoidance of hot, crowded rooms, in case of inherited gout proper treatment for this condition, and in cases with marked pallor, the use of minute doses of nitroglycerin during the intervals of the attacks. As regards cutting off the attacks he has no definite advice to offer.

**Let the Lungs Alone in Consumption.**—W. HUTCHINSON (*Med. Rec.*, April 29, 1905) says that it has been learned by bitter experience that one must practically ignore the bacillus in the treatment of the consumptive, and that the same point of view is being arrived at in regard to the lungs. Among the reasons for letting the lungs alone in treatment is the fact that very few remedial measures at command have any specific action whatever on the lungs, and it is being more and more clearly recognized that consumption is not, properly speaking, a disease of the lungs, but is merely a local (pulmonary) expression of a disease which involves the entire system. There are no tonics or alteratives which improve the nutrition of the lungs, and even the expectorant drugs have been proved to be lacking in the virtues formerly ascribed to them. Sprays, etc., are ineffectual in reaching the bronchi, and in most cases the so-called pulmonary gymnastics and exercises serve simply to drive the infectious material deeper into the hitherto uninvaded areas of the lungs. The author has already shown that the chest of the consumptive is round instead of flat, and that exercises intended to develop the chest as such do harm instead of good. Bodily exercise of any kind is now believed to be distinctly injurious, and absolute rest is indicated in any case in which the afternoon temperature rises above 100° F. Researches by Robin and Binet made over four years ago on the actual gaseous interchange in consumptives have shown that the tuberculous patient consumes a much greater amount of oxygen and gives off more carbon dioxide in proportion to his body-weight than the normal individual. In short, it would appear highly probable that the tuberculous patient is to be regarded in the light of one who is pouring nearly half the heat of the fuel which is burned in his body furnace up the chimney, in the form of smoke; that the food which he takes, instead of being assimilated and decomposed by anærobic processes in the body cells, is burned in the blood and in the lungs. Any means, therefore, which will tend, so to speak, to clog the throat of his chimney and prevent this fatal escape of heat and energy, whether by drugs like creosote, iodoform, cod-liver oil and arsenic, or by pouring in an enormous quantity of food rich in heat value, will tend to restore the balance of gaseous interchange and enable him to return to the normal.

**Multiple Myeloma (Kahler's Disease).**—J. COLLINS (*Med. Rec.*, April 29, 1905) describes this case, which, he states, is the tenth to be reported in this country, while not more than 35 cases in all have been recorded at the present time. The patient was a man of fifty-six years, whose illness lasted about three years in all. The most conspicious symptoms were severe pains in the back and limbs, hyperesthesia of the legs and loss of bladder control. At the autopsy most of the organs were found to be the seat of a chronic connective tissue growth, and in the bones were small round tumor masses. The author says that the following features are worthy of emphasis. In the first place, there was no deformity or alteration in the contour of the bones to be made out during life. Despite the fact that the substance of the bone was so largely replaced by new growth, and the existence of rarefying osteitis to a high degree, there were no indications that there had ever been fractures or dislocations. In the second place, at no time was the peculiar peptone, supposed to be pathognomonic of the disease, found in the urine, and whereas other cases have been reported in which albumose was not found in the urine this would seem to be the first case which was for a long time under observation in which repeated examination of the urine, extending over several months, during which time the disease was fully developed, failed to find albumose. Detailed pathological reports and drawings are appended.

**Multiple Myeloma.**—In commenting on Dr. Collins' report S. J. MELTZER (*Med. Rec.*, May 6, 1905) says the writer describes the case of a man who during

the last two years of his life suffered excruciating pain all over his body and became greatly emaciated. At the post-mortem it was found that the marrow of all the bones was invaded by tumor masses containing round and spindle cells. Dr. H. Oertel, who performed the autopsy, is quoted as saying that he was willing to designate the tumor masses as myeloma because "this term has been used as one of situation rather than histogenesis." Dr. Harlow Brooks, to whom a series of sections were submitted, was "of the opinion that the growth was unquestionably a myeloma." The urine of that patient was examined at several periods during these two years, and at no time a trace of Bence Jones' albumose could be detected. Dr. Collins states that cases of Kahler's disease on record number now about 35, and that his case is the tenth reported from this country. He sees the importance of this case in the fact that the urine contained no albumose, and that, therefore, this case negatives the statement that the occurrence of albumose is pathognomonic for this disease. The last statement Dr. Collins quotes from his paper on "Myelopathic Albumosuria." The difference between Dr. Collins and himself is, he believes, easily cleared up. Dr. Meltzer described a case of myelopathic albumosuria. The 39 cases of myelopathic albumosuria, or Kahler's disease, which are now on record, and nine of which are reported from this country, all had Bence Jones' albumose in their urine. The presence of that albumose in the urine of such patients can, therefore, be considered as pathognomonic for myelopathic albumosuria or Kahler's disease. The case of Dr. Collins', however, was not one of Kahler's disease, but was apparently a case of multiple myeloma of the type described by Buch, Runneberg, Hammer, Marckwald, Wieland, Abrikassoff, and many others. As far as he knew, none of these cases is included in the list of Kahler's disease. It is true that as far as is known at present, all cases of Kahler's disease have their origin probably in multiple myeloma. But it is also pretty safely established that not all cases of multiple myeloma lead to albumosuria. Kahler's disease, or, still better, myelopathic albumosuria, is a clinical entity; multiple myeloma, however, is an anatomical designation for post-mortem findings which might yet prove to be a group of heterogeneous characters. The histogenesis of these tumors is certainly not yet a settled point. He referred to the conflicting statements by Wright and MacCallum in this country. Dr. Collins' case, in which all the bones were involved and in which none of them had shown any outward sign of the pathological condition present in the marrow, differs also in that regard from most of the cases of myelopathic albumosuria. Finally, he added that his statement that "the occurrence of albumose in the urine is pathognomonic for this (Kahler's) disease" can logically be disproven not by cases of multiple myeloma without albumose in the urine, but by cases having albumose (in perceptible quantity) in their urine without presence of myeloma in the bone marrow. Such cases have not yet been observed.

**System and Expedition in Office Practice. Office Plans and Details.**—R. L. DICKINSON (*Med. Rec.*, May 6, 1905) discusses the numerous methods by means of which it is possible for the physician to economize time in office work and so increase his capacity for work. Expedition may be effected in several ways, such as by well-planned quarters, by completeness of outfit, by appointments and by selection among waiting patients, in history taking, and by proper assistance. All of these topics are discussed at length, especial attention being devoted to a consideration of the manner in which the available space of an ordinary city house may best be utilized for office purposes. A large number of plans are reproduced, showing what may be done under different conditions, and many practical hints in regard to methods of securing sound-proof doors and partitions, economizing space, arranging sterilizers, etc., are given. The most convenient methods of illumination and numerous details facilitating office treatment are also described, for all of which reference must be made to the original.

## PHYSIOLOGY.

**The Theory of the Antagonistic Effects of Saline Solutions.**—An explanation of the peculiar antagonisms which saline solutions have for one another, is offered by J. LOEB (*Pflüger's Archiv*, March 28, 1905). It is a fact that the recently fertilized egg of *Fundulus* develops both in distilled water and in sea water, but if brought into a salt solution having the same concentration in which salt is present in sea water, it quickly dies. But if to the salt water be added a small quantity of a salt of a bivalent metal, even such poisonous substances as $Ba\,Cl_2$, $Zn\,SO_4$, etc., the latter will allow the embryo to develop. In this case the zinc sulphate not only lessens the toxic action of the sodium chloride, but also the latter inhibits the poisonous effect of the former. This antagonism is probably to be attributed to the fact that the pressure of the one salt retards the diffusion of the other into the egg. The young *Fundulus*, which has just hatched from the egg, can live for quite a long time in distilled water or in sea water, but it will quickly die in a pure solution of common salt, containing the latter in the same proportion as sea water. This toxic action may be renewed by the addition of $Ca\,Cl_2$ +KCl. Calcium or potassium, alone, is not sufficient, but both together inhibit the toxicity of sodium chloride.

**Anticoagulating and Toxic Action of Transfusions of Foreign Blood.**—By transferring into the dog the blood of other species, I. SALVIOLI (*Arch. Ital. de Biol.*, Jan. 28, 1905) found that the latter produced the following modifications in the blood of the former: a loss of coagulability and also a toxic action. This coagulating power is possessed by the defebrinated as well as the normal circulating blood, and also by the serum, the plasma and the red blood cells. These all possess also the same toxic power. This toxicity is shown in a diminution of the blood-pressure, and a cardiac and a respiratory paralysis. The author has also shown that certain alexins (hemolysines and spermatoxines) are present not only in the serum but also in the plasma. These facts all have a certain importance, since they tend to weaken somewhat the theory maintained so stoutly by Metchnikoff, namely, that the various antitoxic properties of the serum are originally derived from the leucocytes.

**The Effect of Bitters on the Secretion of the Gastric Glands.**—Notwithstanding the widespread use of bitters, the mechanism of their action is practically unknown. STRASHESHKO (*Roussky Vrach*, March 26, 1905) undertook a series of experiments on a dog to determine this action, and states, first of all, that bitters tend to increase the so-called "psychologic" flow of the gastric juice, but whether this depends on the increased reflex action or on some complex nervous act in which the brain cortex participates, is as yet a question for the future to decide. As regards the practical results to be drawn from the above, we should consider the following in pre-

scribing bitters: (1) Administer small amounts of bitter drugs, for large doses are apt to produce an effect exactly opposite to the one desired, while a continued use of such will eventually result in a condition of hyposecretion. (2) Bitters should be prescribed in such forms that when taken internally the nerves of taste should be irritated; we thus must avoid pills or capsules. (3) Bitters should be taken before meals.

**The Functional Condition of the Stomach in Cicatricial Stenosis of the Esophagus.**—A case that had been gastrostomized for complete closure of the esophagus, enabled H. Surmont and M. Dehon (*Arch. de Méd. Expér.*, March, 1905), to study the functional capacity of the stomach during this condition. The case presented a stomach completely isolated from the upper part of the alimentary tract. There was preservation of the stomach mobility, a complete suppression of the psychic secretion of gastric juice, a complete disappearance of the free hydrochloric acid from the latter, a persistence of peptic digestion, and an intermittent secretion of the rennetic ferment, which is only excited by the presence of milk.

**The Study of Digestion Leucocytosis.**—An experimental study of digestion leucocytosis in the dog was made by J. Nicholas and C. Cot (*Arch. de Méd. Expér.*, March, 1905). In the healthy fasting dog, digestion leucocytosis is not observed at the periods of the customary meals. However, an undoubted hyperleucocytosis has been seen in a fasting animal. The amount of digestion leucocytosis varies in different animals. It also varies according to the nature of the foods. The latter have accompanying their digestion the greatest leucocytosis in the following order: Raw beef, fat, milk, cooked beef. Three months after splenectomy has been performed one can't observe no change in the digestion leucocytosis.

**Histological Changes in the Spleen During the Digestion of Albuminoids.**—A study of these changes was made by C. Ciaccio and B. Pizzin (*Arch. de Méd. Expér.*, March, 1905) with the following results: During digestion there is a hyperemia of the spleen, such as occurs in all the splanchnic organs of the abdomen. The cytogenic power is enormously exaggerated, and the spleen pours into the blood cellular elements belonging to both the lymphoid and the myeloid series. This accounts for the leucocytosis that occurs during digestion, particularly that of proteids. By means of this cytogenesis, the spleen effects the passage into the blood of a substance capable of transforming trypsinogen into trypsin. Whether this substance is derived from the breaking down of leucocytes (leucolysis), which is known to occur during digestion, or whether it is the result of secretion by other cells (megakoryocytes), it is as yet impossible to tell.

**Oscillations of Excitability of the Nerve Centers Synchronous With Stimulation.**—Two years ago, Fano described certain automatic oscillations in the excitability of the reflex centers of the spinal cord, which oscillations he found were independent of the stimulation. This subject has been carefully worked over by G. A. Pari (*Arch. Ital. de Biol.*, Jan. 28, 1905), who finds that by varying the frequency of the stimulation one may vary the character and frequency of the oscillations. The oscillations are detected by stimulating electrically one sciatic nerve of a decapitated frog, at regular intervals, the stimulus being the same in all cases. It is responded to by contractions of the gastrocnemius muscle of the opposite limb. While the stimulus is always of the same strength, the muscular contractions vary, the alternate contractions being weaker. It has been shown that this alternation is not the result of any changes in the muscle or nerve, for it does not occur in stimulation of the latter. It is the result, rather, of definite oscillations in the excitability of the reflex centers of the spinal cord. The author has observed a perfect correspondence, however, between the rate of these oscillations and the rate of the stimulation. Thus, the duration of each wave of excitability is exactly double the interval between the succeeding stimuli. If a few stimulations be occasionally omitted, the oscillations continue with the same multitude as before. This shows that the oscillations are not the result of the electrical stimulation, but are truly automatic. The author explains these oscillations on the basis of an alternation of the predominance of either assimilation or dissimilation. The correspondence between the oscillations of excitability and the frequency of stimulation may be interpreted as a synchronization, that is, as a tendency of the automatic oscillations to take the rhythm of the stimulation without losing their character of automaticity. In the absence of external stimulation, the processes of nutrition in the nervous centers have a periodic course, represented graphically by a wavy line. With repeated stimulation there is a rapid catabolism, accompanied or followed by a rapid anabolism. This explains the synchronization between the rhythmic variations in the excitability and the stimulation. Analogous to this are the various forms of synchronization known to physicists. Of extreme interest are the applications of this principle to other physiological phenomena. Thus the rhythmic succession of inspiration and expiration is determined by a truly automatic succession of rhythmic changes in the respiratory center, corresponding to the predominance of anabolism and catabolism in turn. These rhythmic changes may, however, assume the tempo of the stimulation to which the respiratory center may be subjected, as by the condition of the blood. It is well known that the pace of marching men automatically adjusts itself to the rhythm of the music played, while it has been observed by Weber and Landois that the pace has a tendency to become synchronous with the pulse. In the domain of habits the race has adjusted its periods of works and sleep to the alternation of day and night. It is possible, however, to change this synchronization by taking one's sleep during the day. The power of awaking at a fixed time is an example of how one can, by the stimulating power of the will, change the rhythm of sleeping and waking. Our appetite returns at the hour at which we are accustomed to take our meal. The expression "to get accustomed to a thing," or "to acquire a habit," signifies that the nervous mechanism has adjusted itself to the rhythm of the stimulation to which it has been subjected.

**Osteoakusia and Its Relations to the Perception of Vibrations.**—That the bones can transmit vibrations of sound to the auditory organ, is demonstrated by the familiar test of stopping the external auditory canals and applying the tuning fork to the side of the head. W. Neutra (*Deutsche Ztsch. f. Nervenheilk.*, Vol. 28, Nos. 2-4), finds that sounds may be heard by applying the tuning fork to various parts of the body, the sonorous vibrations being transmitted by the various bones. To this phenomenon the term osteoakusia has been applied. This is more marked if the tuning fork be applied where the

bones come near the surface of the body. Disease of the bones and joints, such as swellings, inflammations, fractures, etc., have no effect upon the osteoakusia. From the transmission of sound by bones must be distinguished the perception of vibrations by the body. A vibrating instrument, applied to the skin, is perceived in this way: The vibrations are not carried by the bones, but are reflected by them to the end-organs in the skin, As a test for malingering or hysteria osteoakusia is of some value. The person feigning sickness is apt to deny that he perceives the sound of the tuning fork when applied near a bone, yet no known disease can impair the transmission of sound by the latter.

**The Influence of Meat Diet on the Thyroid and Parathyroid.**—That these glands are intimately bound up with the general metabolic functions has been abundantly demonstrated. An exclusive meat diet produced well-marked histological changes in the thyroid, according to CHALMERS WATSON (*Proc. Physiol. Soc., Jour. Physiol.*, Feb. 28, 1905), but has no effect on the parathyroid. In the animals experimented upon, death followed in a few months after the meat feeding had been begun.

**Observations Upon Cheyne-Stokes' Respiration.**—The physiology of the irregular form of respiration designated Cheyne-Stokes is still clouded in mystery. The researches of M. S. PEMBREY and R. W. ALLEN (*Proc. Physiol. Soc., Jour. Physiol.*, Feb. 28, 1905), tend to show that this type of breathing is due to a lowered excitability of the nerve centers. The accumulation of carbonic acid in the blood causes an increase in the respiratory rhythm, with the production of a true dyspnea, as the result of which the carbon dioxide is washed out of the blood, when apnea follows. This is the regular course of Cheyne-Stokes breathing. This conditon is found not only in disease, but also during health, being seen frequently in young children, in conditions of fatigue, during sleep, etc.

**A Second Coagulation of the Blood.**—The physiology of the coagulation of the blood has been actively investigated within the past few years, and interesting results have been obtained. E. T. REICHERT (*Jour. f. Exp. Med.*, April 25, 1905) has found that fibrinogen is not the only substance in the blood that clots, for after removal of the fibrinogen the blood is still capable of clotting. Upon saturating the blood with neutral oxalate the fibrinogen is prevented from coagulating, but the second substance is coagulated. This result shows that the second substance is quite distinct from fibrinogen.

## PEDIATRICS.

**Acetonuria in the Infectious Diseases of Children.**—That aceton, diacetic acid and oxybutyric acid are frequently found in the urine of children suffering from infectious diseases, is the observation of L. F. MEYER (*Jahrb. f. Kinderheilk.*, March 1, 1905). The production of these substances is to be attributed to the poverty of carbohydrates in the diet, for a disappearance of acetone and similar bodies from the urine follows the administration of larger quantities of carbohydrate by the mouth. The ingestion of fat increates the acetonuria. The appearance of oxybutyric acid is an indication of a more intense disturbance of oxidation. These observations in the significance of acetonuria in infectious diseases are in agreement with what is already known about acetonuria, and indicate no special value of this symptom in infectious diseases.

**Acidosis in Childhood.**—The amount of aceton in the urine of children, while absolutely not as great as that of adults, is, relative to the body-weight, greater, according to L. LANGSTEIN and L. F. MEYER (*Jahrb. f. Kinderheilk.*, March 1, 1905). The younger the child, the greater the acetonuria. The greater part of the aceton formed in the body of children is eliminated by means of the lungs. This is not the case in adults. The total amount of acetone eliminated by younger children as the result of deficient carbohydrates in the food, is greater than in older children and in adults. Oxybutyric acid and diacetic acid appear earlier in children under these circumstances than in adults. In these children, also, there is a rise in the excretion of ammonia. This is due to the fact that the non-oxidizable organic acids in the circulating blood attract the ammonia compounds and then render them capable of excretion. The general condition of the children presenting the signs of acidosis was practically the same in all the cases. The children were listless, tired and depressed. This may have been the result of the restricted diet rather than of the acidosis. The authors' researches show that children have a greater disposition to acidosis than adults. This they explain on the basis of the fact that the reserve supply of glycogen in the muscles and liver is not as great in children as in adults, so that poverty of carbohydrates in the diet gives an easier and more intense manifestation of acidosis.

**Rectal Gonorrhea in Infantile Vulvovaginitis.**—The frequency with which these conditions may be associated, is shown by the investigations of K. FLÜGEL (*Berl. klin. Woch.*, March 20, 1905). He found that among 56 hospital cases of infantile gonorrhea, there was present an involvement of the rectum in 20 per cent. A search was made in each case, even if no external symptoms were evident, by passing a platinum loop into the rectum, and in many cases this had to be repeated several times before a positive result was obtained. The infection probably takes place from the vagina, especially where a profuse discharge is present. In addition to treatment directed to the vulva and urethra, it is well to keep a pad over the vulva as a prophylactic measure. The rectal treatment consisted of the application of suppositories of nitrate of silver or ichthyol, or irrigation of the rectum with nitrate of silver, 1/3,000. It was found that the rectal secretion was freed from gonococci sooner than that from the vagina, which may be accounted for by the fact that the rectal mucosa does not offer as favorable a field for the growth of the gonococci as that of the vagina or the urethra. This investigation shows that in every case of infantile gonorrhea it is necessary to carefully examine the rectum and to institute proper treatment at an early date.

**Drug Intoxication in Children.**—A number of useful general reflections on the subject of the untoward consequences produced by the remedial agents administered to children, are made by G. BOSE (*Rev. Mens. des Mal. de L'Enf.*, April, 1905). It is possible to pursue an efficient and yet innocuous therapeusis. One must, first of all, disabuse one's mind of the fallacy that every case demands a drug. The anxiety of the parent that the disease requires a prescription should not influence the physician. Specific medication is the goal—serum of Roux for diphtheria, salicylate of soda for acute rheumatism, etc. As to the diseases for which there is no known specific, one must remember that most diseases have a natural tendency to a cure, which tendency need only be supported by a few general hygienic rules or a simple prescription. The observance of these principles may save the infant intoxications

which, however light, may not be without danger. The physicians may then be spared the disagreeable consciousness of having produced an arsenical neuritis after having cured a case of chorea, or of having produced a marked mercurial stomatitis in treating a syphilitic child. As to the rules for exact dosage, these cannot be formulated, for each infant reacts in its own peculiar way to the dose employed.

**Infant-Feeding with Székely's Milk Preparation.**—This form of modified milk is being largely used in Austro-Hungary. It is prepared as follows: Skimmed milk is warmed to 60° C., and then put under a pressure of 20 to 25 atmospheres, when with the aid of $CO_2$ the casein is thrown down. Two parts of the whey are then mixed with one part of cream and then 1½ per cent. of equal parts of milk and cane-sugar are added. This mixture is then pasteurized in bottles. The virtues of this preparation are supposed to be in the removal of the superfluous casein without the addition of any foreign agent, the $CO_2$ producing no change in the milk, and being itself easily removed. Twenty-two cases of feeding by means of this form of milk were carefully studied by J. Grosz (*Arch. f. Kinderheilk.*, Vol. 41, Nos. 1 and 2). All were the children of poor parents, and all but five were unhealthy, suffering mostly from the digestive disorders that accompany hot weather. These troubles disappeared with the use of diluted Székely's milk, and an increase of weight was observed. The use of this milk does not encourage the development of rickets. A great advantage of this preparation is that on account of its small content in casein it is more easily digested than other preparations. Another advantage is that the albumin and sugar are present in their unchanged state, and that in consequence of the bactericidal effect of carbonic acid, sterilization is unnecessary. The conclusion is drawn that Székely milk is one of the best substitutes for woman's milk in infant feeding.

**Contributions to the Symptomatology of Barlow's Disease.**—The infantile scurvy is frequently overlooked, has been emphasized frequently during the past few years. The variety of manifestations which this disease may assume, accounts for this difficulty of diagnosis. A case which presents features which have been reported in no other of the 866 cases recorded in the literature, has been observed by S. Weisz (*Arch. f. Kinderheilk.*, Vol. 41, Nos. 1 and 2). It was that of a 4½ months old child that presented a swelling of the right cheek, the size of an orange, painless, red, and yielding on aspiration a completely fluid and sterile blood. The swelling was a subperiosteal hematoma of the upper jaw. There was also a hemorrhage beneath the right lower eyelid, and there occurred hemorrhages beneath the skin in different parts of the body and beneath the mucous membrane of the mouth. The child was breast-fed, and received, therapeutically expressed, orange and lemon juice. The swelling on the cheek reminded one of a cephalhematoma of the new-born. The typical bleedings of Barlow's disease occur beneath the periosteum of the alveolar processes of the jaws. The reason for this localization is that here, owing to the cutting of the teeth, the periosteum is in a condition of greater activity. In spite of the fact that the infant refused to take the orange juice and received only breast-milk, the case spontaneously recovered. That spontaneous recovery in infantile scurvy may occur, is admitted by Barlow. That the cranial bones may exhibit subperiosteal hemorrhages in this disease is not a too uncommon occurrence. The difficulty in these cases is in the differential diagnosis, from noma, angioma, osteosarcoma, hemorrhagic osteomyelitis, sepsis, leucemia, and the various hemorrhagic diatheses. The best preventive against the disease in mother's milk.

**Sudden Death During Pneumonia in Infants.**—The two cases reported by E. Terrien (*Rev. Mens. des Mal. de l'Enf.*, April, 1905), remind one to be on guard against sudden death during this disease. In one case it occurred during the course of the disease, and in the other during convalescence. In one case there was a latent suppurative pericarditis, and in the other an acute and rapid dilatation of the myocardium. In both cases the fat at termination was announced by a cyanosis. The author draws the following conclusions: Extrapulmonary complications of pneumonia are quite frequent, particularly before the second year; among them, pericarditis is particularly redoubtable; most frequently it is latent and frequently it causes sudden death. Sudden death may occur at all ages with or without extrapulmonary complications, although, to be sure, it is not a frequent accident. This possibility allies infantile pneumonia to diphtheria and typhoid fever in this respect. Cyanosis is frequently the first sign of an impending death, the result either of a pericarditis or an acute dilatation of the heart.

## PRESCRIPTION HINTS.

**The Treatment of Rhinitis.**—A number of methods of medicinal applications to the nasal cavities in rhinitis are indicated in an article by M. Malherbe (*La Méd. Infantile*, March, 1905). The following are instillations: In the new-born, introduce by means of a syringe or a small spoon, a few drops of the following mixture:

℞ Menthol ..... 0.30
Ol. olivæ ster. .....40.00

or

℞ Menthol .... } .....aa. 0.30
Resorcin .... }
Ol. olivæ ster. .....40.00

In older children one may use inhalations of sulphuretted water, or emollient fumigations, or employ the following ointment:

℞ Menthol ... } .....aa. 0.50
Salol..... }
Cocainæ hydrochlor. ..... 0.30
Lanolin ..... } .....aa. 15.00
Vaselin ..... }

With an atomizer use the following pulverization:

℞ Sodæ bicarb. ..... } .....aa. 0.50
Sodæ biborat. ..... }
Aquæ destil. .....30.00

In the smaller infants avoid solutions containing carbolic acid.

Bathe nose either with boric acid solution or with the following:

℞ Acid thymic. ..... 4.00
Alcohol .....100.00
Aq. dest. .....900.00

or

℞ Aniodol ..... 0.50
Aquæ .....1 liter

**Sulphur in Nasal Catarrh.**—L. Kolipinski (*Am. Med., May* 13, 1905) recommends the use of sulphur as an instillation powder in the treatment of the putrid discharges of nasal catarrh. The powdered sulphur is also useful in the treatment of tuberculous conditions of the nasal passages.

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SATURDAY, JUNE 3, 1905.


## THE EMMET DINNER.

THE testimonial dinner tendered to Dr. Thomas Addis Emmet, of New York City, on his seventy-seventh birthday, on Monday, May 29, an account of which appears in another column of this week's MEDICAL NEWS, was a worthy tribute to a man who has merited well of two generations of American physicians. Dr. Emmet was one of those who first carried the fame of American surgery and especially of gynecology into European climes, and few men have ever been so widely known in the medical world or so favorably appreciated. His was not the work of a great genius, but of a supreme practical talent. His attention to the slightest details was the secret of his remarkable success as an operator, even in the most difficult cases, and even our modern advances in gynecology have not rendered his methods obsolete. More than any other he realized the truth of the maxim: "trifles make perfection, yet perfection is no trifle."

To Dr. Emmet we owe, here in America, the first effective clinical teaching. At the Woman's Hospital he began und carried to perfection that genuine bedside training of pupils which constituted the corner-stone of what is best and most progressive in our modern medical education. The success of his methods may be best appreciated from the fact that pupils of his are in control of many of the most important gynecological clinics in the United States. More than any formal system of teaching there was the magnetic personality of the man lifting his students up to that higher plane, where they viewed things from the standpoint of their own observation and not through the prejudices of preconceived notions or pet theories. For this the medical profession of America owes Dr. Emmet a debt that will never be adequately paid. It is in this that his highest and best influence was and will be for at least another generation surely felt.

But it must not be thought for a moment that Emmet was lacking in originality. Long before the days of scientific asepsis, with its groundwork in the knowledge of bacteriology, Emmet insisted on a cleanliness of patient and physician that was a definite anticipation of what is most valuable in the modern methods. In the treatment of chronic pelvic inflammation Emmet occupied the conservative standpoint thirty years ago to which gynecologists have in recent years returned again after having tried the effect of operations of many kinds. After a period of partial eclipse Emmet's work is once more coming to be the illuminating principle of many procedures in gynecology.

Dr. Emmet said at the conclusion of the banquet on Monday evening that every professional man should have a hobby and get all the fun possible out of it. His own hobby just now is the Gaelic or Irish language, which he began to learn at the age of seventy-five years—a record recalling Cato's application to Greek at eighty. Neither the guest of honor of the evening himself, nor any of those who made addresses said anything of another hobby of Dr. Emmet's which has proved and will prove for many generations a valuable aid to the study of American history. We refer, of course, to the Emmet Collection of historical documents and printed books dealing with American history, which may be found in the Lenox Library of New York City. It may be said that if he had not made the collection some one else would, but then the world's work always gets itself done somehow, yet we cannot but feel grateful to the doers when the work has been of exceptional character. This collection of Americana will preserve the name of Emmet for all time in the annals of

American bibliography and it stands as a magnificent example of how useful a hobby may be made to others, while furnishing a maximum of pleasure and diverting interest to its rider.

May Dr. Emmet long be with us as a reminder of how much a sincere, simple-hearted physician —a sympathetic teacher and a cultured gentleman, can accomplish in a world that is not over pleasant at best, yet may be a poignant blank at its worst and can be changed to something not so far from the heart's desire by the unselfish efforts of the princes among men.

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### NEUTROPHILIC NUCLEOMORPHISM.

The variable form of the nucleus of the neutrophilic elements of the blood has long attracted the attention of observers, and the question, no doubt, has frequently been asked whether the degree of polymorphism might not be of some definite clinical significance.

But until recently no one, apparently, had investigated this matter in a more than cursory manner. The undertaking was manifestly quite a laborious one, and on first consideration did not suggest itself as a rewarding topic for investigation.

Mononucleism of the neutrophilic elements, it was well known, was a sign of youthfulness on the part of the cell, polymorphonucleism evidence of maturity, and a breaking up of the nucleus into many lobes suggestive of decay. It did not seem likely that a further study of the problem would bring results of material importance.

But notwithstanding such an unpromising vista, a German investigator, Arneth, has recently entered deeply and systematically into the subject, and apparently has obtained results which may prove of distinct value to the clinician. As a result of his preliminary studies in normal individuals, it was ascertained that the various neutrophilic cells can be divided into five large groups, according to the number of the nuclear lobes, and that the cells in which the nucleus is multilobed can be subdivided into cells with round or oval lobes, into cells with loops, into cells with loops and lobes, with further divisions as to the number of loops and lobes in each cell, etc. The first class he terms the myelocyte class, and he here recognizes three divisions, viz., myelocytes proper, *i.e.*, neutrophilic cells with single, round, or oval nuclei; then myelocytes with slightly indented nuclei, and, thirdly, cells with deeply indented nuclei. These latter, of course, are not myelocytes in the true sense of the term, but in so far as they are mononuclear, *i.e.*, the nucleus not broken up into separate lobes or loops, the division is a proper one.

Arneth's technic is simple. Blood smears are prepared and stained as usual, when a hundred neutrophilic leucocytes are differentiated, according to the plan just outlined, and the percentages of the different forms ascertained. Under normal conditions he finds that the percentage numbers are fairly constant and increase from the first to the third class and then diminish in a closely corresponding way to the fifth class; the actual average figures are 5-20-48-23-5.

Under pathological conditions the values may undergo very material alterations, the general tendency being a shift toward the left, *i.e.*, toward the mono- and binuclear forms. It is especially interesting to note that such changes are in no way influenced by the total number of the leucocytes, and accordingly Arneth distinguishes between five distinct possibilities, which he designates by the terms iso- and aniso- normocytosis, hypocytosis and hypercytosis, the terms iso- and aniso- having reference to normal and abnormal relations, respectively, of the different types of neutrophilic cells, and the normo- hypo- and hypercytosis to a normal, subnormal and increased number of the leucocytes as a whole.

It is, of course, impossible to enter into a detailed account of Arneth's clinical observations at this place, and possibly the data obtained are not yet sufficiently numerous to warrant any far-going and dogmatic conclusions, but it may not be out of place to briefly refer to a few of the results which seem especially striking. Particularly noteworthy appear those results which were obtained in cases where the total number of the leucocytes was diminished. Most marked abnormalities were here encountered. Distinct anisohypocytosis was thus found to exist in severe, fatally ending cases of pneumonia. It was constant in typhoid fever and measles, common in varicella and mumps, and further observed in septic diphtheria, miliary tuberculosis, in cases of septicemia, in which the existence of bacteriemia could be assumed, further, in articular rheumatism, fulminating appendicitis, in variola in the initial and the eruptive stage, etc. Arneth inclines to the belief that the common factor in these various conditions is to be seen in the circulation of the infective organisms in the

blood, while hyperleucocytosis results if toxins only are present. The shift toward the left he refers to the destruction of the maturer forms by bacteria. With the occurrence of convalescence a marked swing to the right is often observed, which may be followed by a counter-swing to the left and further oscillations, until the normal is again established. In certain diseases, such as measles, it would appear that the blood picture furnishes more reliable data in reference to the time when recovery may be regarded as established, than clinical observation.

Carcinoma *per se* does not lead to a deviation from the normal leucocytic values, nor does it cause any shift in the percentage figures of the neutrophiles. With the occurrence of complications, however, which sooner or later appear, as a necessary consequence, distinct changes occur, which, generally speaking, are of the character of an anisohyperleucocytosis, although anisonormocytosis may also occur. Whether or not the occurrence of metastases alone is sufficient to bring about such radical changes Arneth has not yet established with certainty, but, to judge from the available data, it appears not unlikely.

These, in short, are a few of the results which Arneth records in his elaborate publications, but they are probably sufficient to show that these relations also should in future be considered by workers in the clinical laboratory.

## TYPHOID IN TWO CITIES.

THE bulletin of the Health Department of Chicago for the week ending May 20, begins with the announcement "One solitary death from typhoid fever in a population of nearly two millions is the notable feature of Chicago's health during the week of May 20, 1905." This is, of course, something to be deservedly proud of, and the Commissioner of Health may well boast of the department's record.

Whether it will ever be true that typhoid fever will grow, as he suggests, to be a negligible quantity in Chicago mortality, remains to be seen. It is something to rejoice over, however, even in anticipation that the additional suggestion that the diagnosis of this disease by the examination of the blood of suspected cases promises to become a lost art, owing to lack of material, may become an actual reality. Dr. Reynolds does not hesitate to add that when the Drainage Channel is complete in all its adjuncts, intercepting sewers in the Evanston and Calumet subsidiary districts, and full flow of 600,000 cubic feet per minute, only an occasional imported case of typhoid, or a still rarer one from milk, oysters or other infected food, will be left for study by the medical profession of Chicago.

To this we can only say with heartfelt sincerity, may all the hopes and anticipations of the Commissioner be fulfilled. His work has been of a character to deserve such a splendid result as this, and our earnest wish is that he shall be given every opportunity to continue to improve Chicago's health in the future, as he has succeeded in ameliorating it in the past. Chicago, from being one of the horrible examples in the matter of sanitation, has become an exemplar to the world of how much can be done in lessening the death-rate from infectious disease by means of proper regulation and the enforcement of ordinary municipal laws, even under not too favorable municipal conditions.

We cannot help, however, contrasting the present state of Chicago's health with regard to typhoid fever, with that of another of our large American cities, Philadelphia. According to the health reports, there were during the first two weeks of May in Philadelphia, 256 and 155 new cases of typhoid, respectively. The deaths from this disease have averaged nearly twenty for all the weeks of the present year. This has been the state of affairs in a population not much more than one-half as large as that of Chicago.

Typhoid fever is an eminently preventable disease. As has been said over and over again in recent years, when a patient dies of typhoid fever, somebody ought to be hung, yet the typhoid situation in Philadelphia has remained unchanged for years.

The experience in Chicago in the reduction in mortality from the disease is by no means unique. Most of the large cities of Europe were hotbeds of typhoid fever half a century ago. Vienna and Munich had a large death-rate from the disease. Each of these cities introduced pure water and saw their typhoid mortality practically disappear. As a matter of fact, the disease is so rare in many medical centers in Germany that it has become a distinct medical curiosity, and whenever a case occurs, students and physicians are especially invited and are given particular opportunities for its study.

It is well understood that the reason why nearly ten thousand young persons suffer from typhoid fever in Philadelphia every year and why nearly a thousand of them give up their

lives, is that the citizens of the City of Brotherly Love are so little prone to dispute with politicians that they accept supinely the fate that is meted out to them. Philadelphia should have had, only for political machinations, a water supply that would have eradicated the mortality and morbidity from typhoid fever some fifteen years ago. We are glad to understand from the public press that at last, apparently, the man and the occasion for the political freedom of Philadelphia has come. It seems almost too bad that it should eventually have been merely a money matter that aroused the feelings of Philadelphians, seeing that they have so disgracefully permitted their young adult population to be sacrificed during so many years. No matter how the freedom may come, however, if it will only give Philadelphia a city government that will properly insure the health of its citizens, it will be sincerely welcome. There has never been, let us hope there never will be, a worse blot on the fair fame of our American civilization than the awful death-rate from a preventable disease in that city of our country in which the native population is the largest, and in which more citizens own their own homes than in any other.

We sincerely hope that the medical profession of the fair city by the Schuylkill will be found as a unit in the ranks of those who are laboring for the institution of government by the people in Philadelphia once more. Even the present long-promised, long-undertaken, long-delayed and almost hopelessly mismanaged filtration plant will not accomplish all that is expected of it if left to the tender mercies of the present political bosses. Now or never must be the watchword for municipal health, and if this opportunity is lost, Philadelphia's future, at least as regards the eradication of typhoid fever, looks blank enough.

## ECHOES AND NEWS.

### NEW YORK.

**Appointment to the Post-Graduate Medical School.**—Dr. Samuel W. Bandler has just been appointed Adjunct-Professor of Gynecology in the Post-Graduate Medical School.

**Hospital Vacancies.**—There are at present three vacancies in the Out-Patient Department of Bellevue Hospital, two in the Genito-Urinary Clinic, those of first and second assistants to the surgeon in charge, and one in the General Surgery clinic as second assistant to that class. Appointments to these vacancies will shortly be made by the Board of Trustees of Bellevue and Allied Hospitals and the Board will be glad to consider the names of all desiring to present themselves as applicants for the positions.

**Present Low Death-Rate.**—If present favorable conditions can be maintained, it is probable, according to the Board of Health officials, that the death-rate for the present year will beat that of 1903, when it was kept down to 18.18 per thousand population. The death-rate for last week was 17.11, while for the corresponding week of last year it was 20.62. The deaths due to spinal meningitis last week were 60, the lowest since the beginning of March, this year. The deaths from the same disease for the corresponding week of last year were eight.

**Brooklyn Dispensary Delayed.**—The New York Department of Health was to have opened, the past month, another special clinic and dispensary for the treatment of tuberculosis, at 75 Henry Street, Brooklyn, where it was planned to follow the system for over a year in successful operation in Manhattan. The ill-advised opposition of residents of the Heights district and of one or two physicians has delayed the matter, and action by the courts will be necessary before it can be opened, as one physician has actually instituted legal proceedings. No such dispensary exists at present in Brooklyn, and the need of it is pressing. Close cooperation had been planned between the clinic and the newly organized Committee for the Prevention of Tuberculosis of the Brooklyn Bureau of Charities, and this general program had been outlined: "Early recognition of pulmonary consumption; the careful supervision of persons receiving treatment, including the supply of milk and proper food to indigent cases; the furnishing of circulars of instruction in many languages and of paper sputum cups and handkerchiefs; the continued observation at their homes of indigent, needy, and ambulatory cases—a staff of specially trained nurses to visit the patients in their homes; the removal of cases requiring such care to hospitals or sanatoriums, and the extension and strengthening of the sanitary control of consumption among the poor."

**Harvey Society.**—A new society called the Harvey Society, consiting of laboratory workers in New York City, has recently been established under the patronage of the New York Academy of Medicine. Its purpose is the diffusion of scientific knowledge in selected chapters of anatomy, physiology, bacteriology, pathology, pharmacology and physiological and pathological chemistry, by the means of public lectures by men who are workers in the subjects presented. Each lecture is intended to represent the state of modern knowledge concerning the topic treated and at the same time will be adapted for presentation before an audience consisting of that portion of the general medical profession who are interested in the scientific side of medicine. It is hoped that through these lectures the common interests of research workers and the medical profession may be profitably cultivated. The fulfillment of the purposes of the society has been entrusted to the hands of the following committee: Graham Lusk, President; Simon Flexner, Vice-President; George B. Wallace, Secretary; Frederic S. Lee, Treasurer; Christian A. Herter, S. J. Meltzer, E. K. Dunham. The members of the society consist of two classes, active and associate members. Active members are laboratory workers in the medical sciences residing in New York. Associate members are such persons as may be in sympathy with the objects of the society and reside in New York. The

first course of lectures will be given on Saturday evenings during the winter of the years 1905-1906, at the Academy of Medicine.

**An American Tuberculosis Exhibition.**—Definite announcement has been made of the "First American Tuberculosis Exhibition," to be held in New York City in November. The National Association for the Study and Prevention of Tuberculosis and the Committee on the Prevention of Tuberculosis of the New York Charity Organization Society have had the matter under consideration for some time. The decision has been reached that in view of the widespread interest, of the large number of anti-tuberculosis associations forming in all parts of the country, and of the increasing desire to provide better conditions for consumptives in many cities and States, it is time to gather together an exhibition which will show just what has been accomplished in this country and abroad in fighting the Great White Plague, and from which results can be expected comparable to the influence upon public opinion of the Tenement-house Exhibition in 1900. The exhibition will be so arranged that it will present through diagrams, photographs and models, a picture of the progress being made in fighting tuberculosis at the same time that it will show the need for much greater effort to bring the disease within the limits recognized as possible. A feature will be the lectures to be delivered, some of a technical nature, but many of a popular sort. The success of the Baltimore Tuberculosis Exhibit, and of a similar undertaking in Boston, give promise of what may be anticipated of one national in scope.

**The Examination of 2,500 Atypical Children.**—During the past two years Dr. Elias G. Brown, who has charge of the work for atypical children in the New York City public schools, has examined more than twenty-five hundred children. The data obtained has been tabulated on cards and the physician has followed up the development of each case under instruction. Dr. Brown states that many of the children sent to him have returned to the grades; that about one-fourth required simply special coaching; that less than one-twentieth were found to need disciplinary training, and less than one per cent. were recommended for transfer to institutions. The most significant fact to his mind revealed by this examination was that about twenty-seven per cent. of the children examined were found to require treatment in special "training" classes for what he designates as "major cases." These major cases, to whom appeal must be made through the senses and by physical activities, are the only ones who should be trained by special methods, according to Dr. Brown. The minor cases, "functional defectives," slow and backward children, he thinks, should follow as nearly as possible the regular methods but at a slower pace. The unruly, he believes, require a sympathetic, strong, self-controlled teacher, capable of setting a rapid pace without noise, and able to inspire her charges to activities along right lines. Manual and physical training are important also in these disciplinary classes.

An important feature of the work is the fact that often the careful examination of a child enables the school authorities or the parents to correct comparatively temporary conditions which are holding the child back, thereby enabling him to continue with his grade. Dr. Brown says: "There is a certain number of children who are not able to keep up with the work of the grades. These atypical children when in the regular grades (being unable to do the work) lack normal competition, become discouraged, lose interest, cease to try, and degenerate still further in many instances. The class teacher is hindered in her work. The children of the class are to some extent held back—the atypical child acting as a drag.

"The solution of this problem lies in teaching the atypical children in special classes. It would be a comparatively simple matter if one form of special class would suffice. It is necessary to make the working plan as simple as possible for the sake of economy in school management; on the other hand, economy should not be forced to such an extent that the child and the community suffer. Some of these unfortunate children (the major defectives) can be taught but little through the intellect. Special training is necessary. For these the 'training class' is formed. Others of the atypical children can be taught in the ordinary way (directly through the intellect), provided they receive individual attention. For these the 'coaching class' is formed. The disciplinary cases should be in a class by themselves." There are now twenty special classes in the city, and the effect has proved to be, first, to enable some atypical children to advance (whereas formerly they stood still or retrograded), and second to allow the normal children (freed from the drag of the dull child) to do better work.

**Manhattan Dermatological Society.**—Regular monthly meeting, held at the residence of Dr. Ludwig Weiss, on Friday evening, May 5, 1905, Dr. E. L. Cocks presiding. The following cases were presented:

*Tertiary Ulcer* (roof of mouth), presented by Dr. L. Weiss. Young man contracted syphilis nine years ago and underwent a thorough course of antisyphilitic treatment, including 180 injections, inunctions, and K.I. and Hg. internally, extending over a period of four years. In the past four years no treatment. Present trouble began about two months ago, with erosion on roof of mouth, and developed into a large excavated ulcer; the nasal septum shows a perforation, and the right nasal bone periostitic. Dr. Weiss spoke on the uncertainty of prognosis, as far as the development of tertiary lesions was concerned, even after so thorough and complete a course of antisyphilitic treatment, and one was never sure how soon a patient would present himself with tertiary lesions, in spite of early and vigorous treatment. Dr. Weiss also discussed the advantages and disadvantages of the various methods of treatment, and likewise stated that this case might do better under the old-fashioned method of treatment, viz., hot baths, sweating, and hot decoctions of Zittmann's solution. Dr. Gottheil said a certain proportion of cases will develop tertiary symptoms, in spite of careful treatment, but the number was small. He would push the mercury. Speaking on the injection method, he prefers the insoluble salts of Hg. and uses by preference the salicylate suspended in sterile oil. Dr. Geyser favored injection of bichloride; a certain number of cases would develop nodules and others not; he was unable to explain why, under similar conditions, one set of patients would develop induration at the site of injections and others escape. Dr. Sobel thought indurations may be due to faulty technic; this case exemplifies that one can never be sure tertiary lesions will not break out. He ventured to remark that a syphilitic should take a course of treatment for one month, each year of his life. Dr. Pisko used bichloride injections for the past twelve years, with no unfavorable results; injections should be made in the gluteal regions only.

Dr. Bleiman likewise favored bichloride injections, having used that method for the past three years; patients sometimes complain of a tingling sensation, which soon passes off. Dr. Cocks uses a platinum needle, stating it was easy to keep clean and did not corrode; saw occasional induration, but no pronounced cellulitis.

Dr. W. S. Gottheil presented two cases of lupus vulgaris (nasal region). Case I of six years' duration and since nine weeks under Finsen therapy, showing excellent results; the nodules have disappeared and slight tanning of skin is observed. Case II likewise same treatment, but result not so encouraging; some nodules still present; previously for three months under X-ray with little or no improvement. Dr. Pisko spoke on the unfavorable action of trichloracetic acid; he explained the technic and said extreme caution was necessary, as the reaction was very severe. Dr. Weiss said the cautery action of the acid could likewise be produced by application of the high frequency currents; according to its application one could produce hyperemia to eschar.

Dr. I. P. Oberndorfer presented a female, twenty-six years old; eight years ago had an attack of typhoid, following which noticed marked seborrhea of the scalp. About one year ago noticed a small pimple on nose which assumed dimensions, followed by development of other lesions of lentil size on adjacent cheeks; about five months ago similar lesions on scalp; flat, bluish papules, resembling frost bite in appearance, are seen on fingers. Scalp likewise shows pediculi, considerable seborrhea, small nodules back of the ear, and some atrophic spots; the face shows reddish plaques, scaly patches and atrophic spots. Dr. Oberndorfer termed the condition lupus pernio. Dr. Pisko said the high frequency current was indicated in this case; it would be less disfiguring than application of trichloracetic acid. Dr. Gottheil claimed equally good results might be attained with sulphur and resorcin ointment. Dr. Allen said some cases of lupus pernio tend to show relapses in cold weather. Dr. Weiss believed the condition to be longer than five months' duration. Dr. Geyser likewise expressed surprise at the rapid progress of the disease in so short a time.

Dr. E. L. Cocks presented a young man showing a small ulcer on lower lip; it began as a herpes four weeks ago; cleared up, leaving this small area of ulceration; submaxillary and sublingual glands of affected side painful and slightly enlarged. Dr. Cocks thinks it a chancre; he thought he was justified in his opinion, since this young man's mistress is a subject of syphilis and at present under treatment for mucous patches of the mouth. The consensus of opinion seemed to regard the condition as one of simple ulcer.

Dr. A. Bleiman presented a case for diagnosis. Male, forty-five years old, working in a slaughter house; stated eruption began seven months ago as scaly blotches on body and limbs, face and scalp; the entire skin became involved and the palms and soles calloused and fissured; recovery took place in eight weeks, but the skin always showed slight scaling; a second attack broke out three weeks ago; within ten days the entire body showed marked scaling; the palms and soles again became calloused and peeled off in large pieces, the skin on body and limbs showing only light desquamation. Dr. C. W. Allen stated the case was seen by him a day or so ago and to him it appeared as if the original eruption was one of pityriasis rosea; the condition of the palms and soles was remarkable, but he had already observed such cases and stated that he saw a case of pityriasis rosea, showing vesicopustular lesions on the palms. Dr. Weiss recognized some resemblance to pityriasis rosea; some of the classical signs were present, others wanting. Lichen planus rubra was also thought of. Dr. Oberndorfer said it resembled pityriasis rubra; pityriasis rosea he would not entertain at all. Dr. Sobel stated it resembled a condition described under dermatitis exfoliativa recurrens. Drs. Kinch, Pisko and Cocks called it dermatitis exfoliativa. Dr. Gottheil never saw a case of pityriasis rosea showing such involvement of the palms and soles; a considerable amount of dermatitis with seborrhea was present; he termed it seborrheic dermatitis. Dr. Bleiman stated he understood dermatitis exfoliativa to be a general disease and one not limited to exfoliation of the soles and palms alone; the suggestion of Dr. Allen was well taken; the remarkable condition of the soles and palms was hard to explain, except, perhaps, as a result of the man's occupation, and he therefore looked upon the entire process as a general eczematous condition.

Dr. B. F. Ochs showed an adult male with lesions on nose and cheeks; of two years' duration, and began as small papules with redness and seborrhea; regarded as a case of rosacea.

Dr. C. A. Kinch presented a colored man with lesions on lower left thigh and upper leg. Patient states, three years ago he fell and injured left knee; following injury an abscess developed and discharged; then marked lividity and swelling, with breaking out of several indolent ulcers; other ulcers appeared above and below the knee; these are now fully healed and cicatrized. Dr. Kinch thinks the process was a tuberculosis. In this opinion the members dissented and concurred in calling it lues.

Dr. W. S. Gottheil then presented his case of folliculitis capitis (shown at April meeting); apparently every hair follicle was invaded; such extensive involvement he rarely saw. Dr. Geyser said the high frequency current was indicated in this case.

Dr. I. P. Oberndorfer showed an adult with typical lesions of lichen planus confined to glans penis only; other parts of body and mucous membranes clear. Dr. Allen said he observed lichen planus in this and other regions with development of vesicles and bullæ; the latter were extremely rare. Dr. Weiss believed lichen planus to be characterized by a flat papule, which never underwent changes, but was a papule from the very beginning and so remained until involution set in. He never saw the types mentioned by Dr. Allen.

Dr. L. Weiss presented a case for diagnosis; a young man had an outbreak of irregular-shaped and sized blotches on upper and lower limbs about three months ago; slightly itchy; these blotches are still visible, some older lesions being pigmented; new lesions consist of a circular indurated efflorescence about size of a penny; the skin is harsh, dry, scaly; the scalp is dry and scaly. A single patch on abdomen resembles a patch of seborrheic eczema. Other parts of body free, except the outer thighs, which show typical keratosis follicularis. Dr. Gottheil believes the condition originally was an erythematous eruption; some of the newer lesions look like erythema multiforme. Dr. Oberndorfer thought of eczema seborrhoicum; lesions on knee resemble psoriasis; considers it an atypical form of psoriasis with marked seborrhea. Dr. Sobel called it eczema seborrhoicum psoriasis formis. Dr. Kinch saw no lesions of psoriasis; called it eszema seborrhoicum. Dr. Pisko said psoriasis and seborrhea were both present, but not as a typical variety. Dr. Allen said there was little difference between some types of psoriasis and eczema seborrhois. Dr. Ochs favored diagnosis of psoriasis. Dr. Bleiman believes there are two conditions to deal with, an erythema multiformis and a mild

form of ichthyosis, the latter obscuring and modifying the former; having the case under observation for three weeks, the ichthyosis in the beginning was a marked feature of the disease; a psoriasis or eczema seborrhæcum of three months' duration would not limit itself to the limbs alone and spare the trunk. Dr. Weiss, in closing, said the patient presented most of the signs and symptoms of a seborrheic condition. In new lesions of psoriasis the eruption was small, not large, as in this case; although not willing to make a definite diagnosis, yet he inclines to that of eczema seborrhoicum.

## PHILADELPHIA.

**Mines' Death List.**—According to the report of Chief Roderick, of the Department of State Mines, the total number of fatal accidents during the year 1904 was 595, and the number of non-fatal was 1,047. The whole number of men employed was 161,330, and the number of tons of coal mined 65,700,258.

**Qualified as Nurses.**—At the annual commencement exercises of the Nurses' Training School of the Women's Hospital, nineteen nurses received certificates which qualify them to practice their profession. The diplomas were presented by Mrs. Margaret P. Saunders, president of the Training School, in the clinic amphitheater. One of the graduates is from Ireland, one from Ohio, one from Florida, one from Delaware, three are from Canada and the remainder are from Pennsylvania. The Training School connected with the West Chester Hospital graduated four nurses. The exercises were held in the chapel of the West Chester Normal School, May 26, 1905.

**Hospital Buildings Opened.**—By the aid of philanthropists the Methodist Episcopal Hospital has been able to add four new structures to its already existing buildings. The buildings dedicated last week consisted of the nurses' home, erected at a cost of $40,000 by Mr. T. Comly Hunter in memory of his mother; of the Mary Burton Dispensary; of a power house; of an ambulance stable. The cost of the four buildings was $121,000. The dedication address was delivered by Bishop C. D. Foss. The other speakers were the Rev. E. E. Buriss, the Rev. Dr. S. Thomas, the Rev. Dr. C. W. Bickley, the Rev. Dr. S. M. Vernon, vice-president of the Board of Trustees, the Rev. Dr. J. A. Lippincott, the Rev. Dr. J. S. Hughes, and H. W. Castor, the architect.

**Philadelphia Pathological Society.**—At the meeting of this society which was held May 25, 1905, Dr. J. M. Anders and Dr. A. C. Callahan read a paper "On a Case of Bilharzia Hematobium." They exhibited slides showing ova of the parasite. Dr. John Funke read a paper on "Thrombosis of the Superior Mesenteric Artery with Resulting Hemorrhagic Infarction, Perforation and Peritonitis." Dr. Riesmann discussed it. Dr. Allen J. Smith then read a paper on "Hypertrophy of the Thyroid in a Case of Hypotonia." The discusion was opened by Dr. Spiller. The next paper was read by Drs. J. F. Schamberg and R. Hirschler, on an "Epithelioma of the Forehead Having its Origin in a Papillary Nevus." This paper was discussed by Dr. Hartezell and Dr. Loeb. Dr. H. S. Wieder read a paper on "Intrahepatic Gallbladder."

**Registrar of State Vital Statistics Appointed.**—The bill which was signed by the Governor May 1, creating the bureau of Vital Statistics, was put in force by the election of Dr. Wilmer R. Batt, as Registrar. The doctor has been connected with the State Quarantine Service for several years, and he has been active in the movements destined to safeguard the public health and to suppress epidemics.

**Eclectic's Medical Officers Chosen.**—At the annual meeting of the Pennsylvania Eclectic Medical Association, held in Harrisburg, May 26, 1905, the following officers were chosen: President, Dr. C. S. Johnson Baugh, Bethlehem; First Vice-President, Dr. A. F. Dunsmore, Barnesboro; Second Vice-President, Dr. W. R. Campbell, East Smithfield; Recording Secretary Dr. Nanni M. Sloan, Latrobe; Corresponding Secretary, Dr. A. Kimmelrauch, Johnstown; Treasurer, Dr. W. H. Wolf, Pittsburg.

**Physicians to Organize.**—The physicians of Delaware, Chester and Philadelphia counties met in the Hall of the College of Physicians May 26, 1905, and listened to an address delivered by Dr. J. N. McCormack, of Kentucky. He is chairman of the Committee on Organization of the American Medical Association. During the evening he asserted that things have come to such a pass in the medical profession that there is a class of ill-supported and hence ill-informed and ignorant physicians whose antiquated methods do their communities and the profession at large more harm than good. It is all due to the fact that the physicians do not get paid for their services. Then, too, he is inclined to think that physicians work harder than any other class of people, and that there should be an up-to-date organization all over the country to lift up to the light struggling physicians who do not make enough to supply their families much less to supply the physicians with the necessary standard literature. In Kentucky, he said, an organization has been effected to make a uniform fee schedule.

**Medical Students Become Physicians.**—At noon, May 24, 1905, the senior students of the Hahnemann Medical College and their friends gathered at the Academy of Music to participate in the fifty-seventh annual commencement of that institution. They listened to an address delivered by Bishop Foss, who warned them of the dangers of political corruption in municipalities. The degrees were conferred upon the forty-four men by Judge William B. Hanna. The Alumni banquet was given at the Bellevue-Stratford, at which Dr. L. P. Posey presided. Henry F. Walton, president of the Board of Trustees of the Medico-Chirurgical College, conferred the degrees of Doctors of Medicine upon eighty-five students of that institution on May 27, 1905. The doctorate oration was delivered by Judge William N. Ashman. At the banquet of the Alumni Association of the Medico-Chirurgical College, which was held during the evening of May 26, 1905, District Attorney Bell spoke of the relation of law and medicine, especially in regard to the medical witness. On June 2, at the eightieth annual commencement of the Jefferson Medical College, 109 men received diplomas. The degrees were conferred upon the graduates by the Hon. William Potter, president of the Board of Trustees of the College. The students and alumni presented to Prof. Forbes his portrait, and Prof. Piersol, Professor of Anatomy at the University of Pennsylvania, presented him with a loving cup. The banquet of the Alumni of the Jefferson Medical College was held June 1, 1905.

**Hospital Notes.**—To honor them for the services rendered the Board of Officers of the Jewish Hospital Association have placed the portraits of Judge Sulzberger and Mr. August Loeb in the meeting room of the board. The Judge has served in one

capacity or another of the Jewish Hospital for forty years, while Mr. Loeb has served as treasurer for twenty-five years. At the fortieth annual meeting of the association the following officers were elected: President, William B. Hackenburg; First Vice-President, Mayer Sulzberger; Second Vice-President. Isadore Sangsdorf; Third Vice-President, Benjamin Wolf; Treasurer, August B. Loeb; Secretary, Henry N. Wessel; Corresponding Secretary, Arthur A. Fleisher; Directors for three years, Samuel D. Lit, Morris Rosenbaum, Gabriel Blum, Oscar D. Loeb, in place of A. M. Kohn, who becomes an honorary director; Directors for one year, Joseph N. Snellenburg, for unexpired term of Benjamin Wolf, elected third vice-president; Frank Kind, for unexpired term of August Wise, who becomes an honorary director; Directors for two years, for unexpired terms of Dr. L. W. Steinbach and Joseph L. Greenwald, who become honorary directors, Max Bamberger, Ben. Gimbel. The commencement exercises of the Nurses' Training School of the Jewish Hospital took place the next day, on which day donations were received by the hospital. The Federation of Jewish Charities, according to the will of Herman B. Blumenthal, receives a bequest of $2,000.

At the annual meeting of the Board of Directors of the Jewish Maternity Association, the following officers were elected: Medical Director, Dr. Isaac Leopold; Consulting Obstetricians, Dr. Lucy N. Tappan, Dr. Joseph Price; Consulting Surgeons, Dr. Lewis W. Steinbach, Dr. Charles P. Noble; Consulting Ophthalmologist, Dr. Isaac Leopold; Consulting Neurologist, Dr. Francis X. Dercum; Consulting Pathologist, Dr. David Riesman; Consulting Dermatologist, Dr. J. F. Schamberg; Consulting Pediatrician, Dr. Eleanor C. Jones; Obstetricians and Gynecologists, Dr. Clara T. Dercum, Dr. Daniel Longaker, Dr. Helen Kirshbaum, Dr. Edwin A. Heller, Dr. Ludwig Loeb, Dr. Leo H. Bernd; Pediatrician, Dr. I. Valentine Levi; Dispensary Physicians, Dr. Clara T. Dercum, Dr. Daniel Longaker, Dr. Helen Kirshbaum, Dr. Edwin A. Heller, Dr. Ludwig Loeb, Dr. Leo H. Bernd, Dr. Moses Behrend, Dr. I. Valentine Levi, Dr. Justin G. Schwerin, Dr. Ellis E. W. Given, Dr. D. A. Feldstein, Dr. Louis P. Steinhart; Resident Physician, Dr. Elizabeth F. Lewis; Head Nurse and Superintendent, Mrs. Blanche F. Schloss; Instructor in Massage and Swedish Movements to the Nurses' Training School, Mr. Louis D. Sinker.

**American Neurological Association.**—The thirty-first annual meeting of the American Neurological Association opened on June 1, at the College of Physicians. The following is the program of the meeting: Presidential Address, by Dr. William G. Spiller; "The Relation of Certain Persistent Emotional States to Insanity," by Dr. Theodore H. Kellogg; "A Fatal Case of Neurasthenia," by Dr. Theodore Diller; "Insanity in the Aged," by Dr. Charles W. Burr; "Psychasthenia, Its Clinical Entity, Illustrated by a Case," by Dr. Sidney I. Schwab; "A study of Pathological Gait," by Dr. Joseph Sailer; "Multiple Sclerosis; Four Cases, with Autopsy; Consideration of Differential Diagnosis," by Dr. Edward Wyllis Taylor; "The Relations of the Cerebral and Olfactory Regions of the Brain," by Dr. Burt G. Wilder; "Two Cases of Cervical Rib, with Operation," by Dr. Hugh T. Patrick; "A Contribution to the Acute Polioencephalitis Superior (Wernicke)," by Dr. J. Ramsay Hunt; "Disease of the Cerebral Venous System," by Dr. D. J. McCarthy; "A Study of Two Brain Tumors of Endothelial Origin—One a Multiple Cylindroma, One a Perithelioma," by Dr. Herman C. Gordinier and Dr. H. H. Carey; "The Results of Operations for the Removal of Cerebral Tumors," by Dr. Philip Coombs Knapp; "Brain Tumors: A Study of Clinical and Post-Mortem Records Bearing on Their Operability and Their Symptomatology," by Dr. George L. Walton and Dr. W. E. Paul; "Post-Operative Asthenia," by Dr. S. Weir Mitchell; "The Motor Area of the Human Cerebrum as Determined by Cortical Faradization, with a Discussion of the Surgery of the Motor Region," by Dr. Charles K. Mills and Dr. Charles H. Frazier; "Cerebellar Tumors, with Reference to Diagnosis and Surgical Treatment," by Dr. B. Sachs; "Sarcoma of the Cerebellum, with Unusual Symptomatology," by Dr. F. X. Dercum; "Concerning Operative Intervention for the Intracranial Hemorrhages of the New-Born," by Dr. Harvey Cushing; "The Progressive Spinal Atrophies—Study of the Etiology and Grouping of Fifty Cases, with Report of a Case with Autopsy," by Dr. Charles L. Dana; "Ascending Transverse Myelitis, with Osseous Anchylosis and Growth of the Vertebræ and Extreme Anterior Curvature," by Dr. Graeme M. Hammond; "On the Localization and the Mechanism of the Process of Reading," by Dr. William Hirsch; "The Mental Symptoms of Cerebral Tumor," by Dr. Philip Coombs Knapp; "Carcinoma of the Nervous System," by Dr. Wm. G. Spiller and Dr. T. H. Weisenburg; "Observation on the Temperature in Cerebral Hemorrhage and Cerebral Embolism," by Dr. William N. Bullard; "Palates of the Feeble-Minded," by Dr. Walter Channing and Dr. Clark Wissler; "Paraplegia from Fracture of the First, Second, and Third Dorsal Vertebræ," by Dr. Guy Hinsdale; "A Case of Brown-Séquard Paralysis, Due to a Fall Upon the Head; Operation; Autopsy," by Dr. Wm. C. Krauss; "A Case of Epilepsy, Associated with Graves' Disease and Total Alopecia," by Dr. Frank H. Hallock; "Hypæsthesia or Hypalgesia and Their Significance in Functional Nervous Disturbances," by Dr. Edward B. Angell; "Sarcoma of the Spinal Cord, with Dissociated Sensory Loss," by Dr. F. X. Dercum; "Hysterical Stigmata, Caused by Organic Brain Lesions," by Dr. Herm. H. Hoppe; "Case of Double Consciousness," by Dr. Richard Dewey; "Exhaustion Paralysis of Cortical Origin, Due to Arteriosclerosis," by Dr. D. J. McCarthy; "A Case of Internal Hydrocephalus, with Autopsy," by Dr. Theodore Diller; "The Chronic Progressive Softening of the Brain," by Dr. J. Ramsay Hunt; "Autopsy in a Case of Adiposis Dolorosa," by Dr. F. X. Dercum; "A Case of Cerebral Tumor Presenting Confusing Symptoms," by Dr. Frank R. Fry. A luncheon was given the association on Thursday at the University Club and the members were invited to a smoker at the Art Club in the evening. The Art Club also served luncheon on the following day, and the meeting closed Saturday.

## CHICAGO.

**One Typhoid Death in Chicago in Week.**—Only one death from typhoid fever, in a population of nearly two millions, was the notable feature of Chicago's health during the week ended May 20.

**Chicago Pediatric Society.**—At the annual meeting, held May 23, 1905, the following officers were elected for the ensuing year: President, Dr. Samuel J. Walker, reelected; First Vice-President, Dr.

Frank S. Churchill; Secretary-Treasurer, Dr. Emma Moore; Trustee for three years, Dr. I. A. Abt, re-elected.

**Pneumonia and Consumption.**—Pneumonia is still struggling for leadership—70 deaths reported during the week as compared with 58 from consumption. There have, however, been 703 fewer pneumonia deaths this season than last, while there have been 97 more from consumption. The ratio of pneumonia deaths to deaths from all causes is 13 per cent. less and of consumption 17 per cent. higher than last season.

**Dr. Murphy Joins Rush Faculty.**—Dr. John B. Murphy has resigned his position as Professor of Surgery and Clinical Surgery at the Northwestern University Medical School, and has accepted the position of Professor of Surgery at Rush Medical College. The change, it is said, involves the severance of his connection with Mercy Hospital, as its surgeon-in-chief. The tender of the Professorship at Rush Medical College was made at the meeting of the trustees of the University of Chicago, held Friday, May 26.

**Dinner Given by Faculty.**—The Faculty of the University of Chicago gave a farewell dinner Saturday evening, May 27, to Prof. John F. Jameson and Dr. L. F. Barker, at the Auditorium Hotel. Prof. Wm. G. Hale presided. Toasts were responded to by Prof. Paul Shorey, Prof. Albion W. Small, Dr. Frank Billings, and Dr. Hugh T. Patrick. Dr. Barker, who was formerly head of the department of anatomy at the University of Chicago, goes to the Johns Hopkins University as Professor of Medicine and Physician at Johns Hopkins Hospital.

**The Annual Banquet of the Alpha Omega Alpha Society**, which is an honorary medical organization, was held May 26, at the Great Northern Hotel. The principal speech was made by Prof. William E. Quine, of the College of Physicians and Surgeons. His subject was "The Ideals and Practices of the Medical Profession." Other speakers were Prof. W. S. Hall, Northwestern Medical College; Prof. Bayard Holmes, Physicians and Surgeons', and Prof. S. W. Williston, University of Chicago. Prof. Joseph B. De Lee was toastmaster.

**Study of Chicago's Decreasing Mortality.**—Further study of the decreasing mortality in Chicago during the last ten years compared with the immediately preceding decade, corroborates the assertion made in a previous bulletin, to-wit, that the greatest decrease are among diseases over which sanitary administration and preventive medicine have greatest and most direct control. The decrease is in no wise connected with the "wonderful climate of Chicago," to which it is so often attributed by those compelled to take cognizance of the fact, nor to any occult or mysterious agency.

**Results of Examinations for Senior Physician at Dunning Institutions.**—The County Civil Service Commission has announced the results of the recent examinations, as follows: Nervous and Mental Diseases: Drs. Joseph M. Kearney, Hospital for Insane, Elgin; Ralph C. Hamill, Chicago; Ernest S. Moore, Chicago; Groesbeck Walsh, Chicago; Benjamin Landau, Dunning; Clara Dunn, Chicago; Julius F. Wen Gleski, Chicago; Goodrich Snow, Princeton; I. G. Blackmer, Dunning. Tuberculosis: Ernest S. Moore, Chicago; Benjamin Landau, Dunning. Medicine: Ralph C. Hamill, Chicago; Benjamin Landau, Dunning; Goodrich Snow, Princeton; Julius F. Wen Gleski, Chicago.

## GENERAL.

**Lane Lectures.**—Sir Patrick Manson has been invited to give the Lane lectures at the Cooper Medical College, California, this year. He will lecture on some aspects of tropical diseases.

**Prof. Langley at Meran.**—Professor J. N. Langley, of Cambridge, will give one of the general lectures at the meeting of the Association of German Scientific Men and Physicians, which opens at Meran on September 24. His subject will be "Recent Researches on the Nervous System."

**Changes at the University of Colorado.**—At the University of Colorado, Dr. M. E. Miles, who has been demonstrator of anatomy, has been appointed professor of anatomy; Dr. E. H. Robertson, professor of bacteriology and pathology, has resigned to engage in other work; and Mr. G. S. Dodds has been appointed instructor in zoology.

**Awarding of Medals.**—The Baly medal, given every alternate year on the recommendation of the president and council of the Royal College of Physicians of London, for distingiushed work in the science of physiology, especially during the two years immediately preceding the award, has been awarded to Professor Pavlow, of St. Petersburg. The Bisset Hawkins gold medal for 1905, given triennially for work deserving special recognition, as advancing sanitary science or promoting public health, has been awarded to Sir Patrick Manson, K.C.M.G.

**Bubonic Plague in Scotland.**—Four cases of bubonic plague are reported as occurring in the family of a laborer in Leith, Scotland. It is believed that the source of infection was rats, as the infected area is near the water front and infested with those animals. Recently an increased trade has developed between Leith and eastern ports, and although no case of plague or suspected plague has occurred on any of the ships coming from those ports there has undoubtedly been ample opportunity for the importation of rats. Stringent measures have been taken to prevent the spread of the infection, and it is believed that these measures will prove successful.

**A Field for Orthopedic Hospitals Outside the Larger Cities.**—The first annual report of the New Jersey Orthopedic Hospital and Dispensary, located in Orange, has recently been published. The record of the work accomplished thus far is a sufficient proof of the need of such an institution in New Jersey. In the period of fourteen months covered, one hundred and forty-six patients were treated at the dispensary with a total number of 1,630 calls. The dispensary is open two afternoons each week. The hospital has cared for thirty-four patients, its capacity having been gradually increased from four to eight beds. Fifty-one operations were performed during the year. One feature of the work has been of especial value. A class in gymnastics is held on each clinic day, in charge of a special physician, and individual supervision is given to the exercises of those patients needing special treatment. A marked improvement in the physical condition of those under his care is apparent.

**A Relief to State Hospitals.**—The adoption of a plan for boarding out harmless insane, improvements in the present unsatisfactory methods of deporting the alien insane, the employment of a dietist at every hospital for the insane, the early construction of the proposed reception hospital in New York and the construction of a new hospital between New York and Poughkeepsie, are the more important matters

urged in the twelfth annual report of the State Charities Aid Association. In Belgium and Scotland, the report says, 20 per cent. of the entire insane population is provided for in private families with good results, and it is declared that if only one-half that number were so provided for in this State, "the present overcrowding of the State hospitals would be entirely relieved and new construction could be altogether devoted to the accommodation of the expected increase of the insane in the future. As to improvement in the methods of deporting insane aliens the report recommends a system of cooperation between the State hospital authorities, the immigration authorities and the agents of steamship lines. The association lays stress upon the importance of a diet suitable to particular cases and recommends the employment at every hospital of a dietician who ought to be a graduate of a normal domestic science course of two years and to have had practical experience. Other important topics are under consideration. Some change in the mode of governing the hospitals is contemplated by reason of the recently signed bill restoring the old Board of Managers to control, wrested from them by the Odell regime with the idea by concentration of making more political capital and also of providing jobs for hungry henchmen. It would be premature to say that the restoration of the local boards will prove all that is hoped for.

**Sir Frederick Treves' Estimate of the Japanese.**—Sir Frederick Treves, the eminent British surgeon, in a speech at the dinner of the Japan Society in London, the other evening, spoke enthusiastically of the medical and surgical skill of the Japanese. He said that anybody desirous of seeing the last thing, the most ingenious thing, and yet the simplest thing in the equipment of war, must go to Japan. Many of the problems which concern European armies, and have been to a large extent, a terror of war in European countries, the Japanese were solving or had solved. British troops, he said, enter a war with many determinations. One is 10 per cent. of sick. It is what they are accustomed to expect to get, and they get it. The Japanese are quite content with 1 per cent. of sick, and they get it. It was a question of ambition, perhaps, he said, but one which might well be imitated. Proceeding, the speaker said, he was convinced that Japan not many years hence would provide one of the most remarkable schools of surgery that the world has ever seen. "You will understand why," he continued; "there is the infinite patience of the people, their infinite tenderness. Kinder, more sympathetic people do not exist. Then comes one very important factor, at least, in the making of a surgeon; they have no nervous system. Nerves is an untranslatable term in the Japanese language. I am confident that we shall find in the islands of Japan, not many years hence, one of the most curious, interesting and progressive schools of medicine that this world has seen."

## OBITUARY.

Dr. HENRY P. STEARNS, who recently resigned the superintendency of the Hartford (Conn.) Retreat for the Insane, died last week at Hartford, Conn., aged seventy-seven years. He was a graduate of Yale College and Medical School and was the first surgeon commissioned for a volunteer regiment in the Civil War. He was on General Grant's staff, and became a lieutenant colonel.

# CORRESPONDENCE.

## OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, May 13.

MR. CHAMBERLAIN ON TROPICAL MEDICINE—THE ANTIVIVISECTION MOVEMENT—THE TRAINING OF MIDWIVES—BUBONIC PLAGUE AT A SCOTTISH SEAPORT.

ON May 10 a big effort was made to enlist the practical sympathy of the public on behalf of the London School of Tropical Medicine in the shape of a great banquet at the Hotel Cecil, presided over by Mr. Chamberlain, to whose initiative the School owes its establishment. Whatever differences of opinion there may be about his fiscal policy or his personality, it is a simple truth that he was the first British statesman who showed any sense of the importance of medical science in colonization. For this alone his name deserves to rank among those of men who have best served the British Empire. Inspired by Manson he has taken a most active part in promoting the study of tropical diseases. During the six years of its existence the School has taught a large number of practitioners how to deal with the strange diseases they will meet in the tropics and how to use the opportunities which come in their way of adding to the store of knowledge. But it has only a meager endowment, and its very success, which makes bigger buildings and a larger installation necessary, makes the want of money acutely felt. Mr. Chamberlain, though barely recovered from a recent indisposition, pleaded its cause very effectively. He said his interest in the study of tropical diseases was unexhausted, and, indeed, inexhaustible. He could not think of any subject of scientific research and philanthropy which was of more interest. Its pursuit was a duty which we owed to the Empire, and from which we could not divest ourselves. This duty had extended of recent years with the extension of our territories. We owed the duty to those vast populations for which we had gradually made ourselves responsible. We owed it still more to those of our own race who were daily risking health and life in order to maintain the honor and the interests of this country. We must go on till something like rough justice and order had been introduced into territory for which we were responsible. Hence, we had many little wars from time to time on our hands. But if every life that was lost in the whole of that series of campaigns was counted, the total would not approach to more than a fraction of the native population destroyed every year before our advent. In all this work the pioneers had suffered from their ignorance of the new conditions they would have to face and our inability to deal with them. The result had been that many of them had left their lives behind them. It was true, as Kipling said,

On the sand-drift, on the veldt-side, in the scrub we lay,
That our sires might follow after by the bones on the way.
Follow after, follow after. We have watered the root,
And the bud has come to blossom that ripens for the fruit.

Some of these sacrifices must be made, but our duty was to reduce this blood tribute to the utmost. A great opportunity had now come. Altogether 503 students had passed through the London school.

He need not dwell on the advantages of such an institution, for though they were still at the beginning of their inquiry, they had shown how much they had been able to do in uprooting yellow fever, malaria, and kindred diseases. Sir Patrick Manson is usually an impressive speaker, but on this occasion, unfortunately, he was quite inaudible and even the reporters of the leading newspapers were baffled. The result of the banquet was fairly satisfactory, nearly $50,000 being subscribed. But more than ten times that amount is needed to make the School completely equal to the great task which it has to fulfil.

While Mr. Chamberlain was dwelling on the value of medical research work to the nation and to the whole human race, the antivivisection fanatics were holding a meeting in which it was denounced as the work of the devil. The merits of the two cases might accurately be gauged by the quality of the audience. While Mr. Chamberlain was listened to, and at frequent intervals loudly applauded by men whose names are familiar as household words in the mouths of English-speaking people throughout the world, Mr. Stephen Coleridge, the leader of the enemies of science, spoke to a number of fine ladies, sportsmen and parsons. Lord Llangattock, a mighty slaughterer and maimer of pheasants, who was in the chair, said the National Antivivisection Society now has thirty-five organized bodies aiding its efforts. He did not mention that the antivivisectionist camp is torn by contending factions which abuse each other with unedifying rancor. The noble chairman went on to deny with some vehemence that the Society was working against the medical profession; there was, he said with pharisaic unction, no profession for which they had greater respect, regard and admiration. It was not the 40,000 medical men whom they opposed, but the 340 vivisectors. Mr. Coleridge moved a resolution calling upon Parliament "to make the torture of animals for scientific knowledge a crime." He spoke strongly of the immorality of vivisection, but in one respect a remarkable change of tone was noticeable. It was not that he did not ask that all experiments on living animals should be made unlawful. This line he has taken before, for the excellent reason that he does not think such a bill could ever pass. That is the difference between him and those of his own fold who differ from him; they demand total abolition, while he will take what he can get. But on the present occasion, Mr. Coleridge said that if they were to ask Parliament to abolish the painless experiments, ending in the animal's death, they would be asking that the man of science should be placed lower than the slaughterman. From him this is an immense concession; a little while ago he could not say anything bad enough of men of science. Discussing the claims made on behalf of vivisectors that they had conferred great benefits on the human race by their practises, Mr. Coleridge said he had looked into the death-rates, as set out in the Registrar-General's returns, in connection with certain diseases. The best test as to whether a disease was being cured or not by a particular practice was to be found in those statistics. Taking diphtheria, it was said that that disease was to be stamped out by the use of antitoxin, which was first produced in 1894. The death-rate per million for the ten years previous to that year was 1,912, but since then it had been 2,603. Then there was cancer, in connection with which an Imperial Cancer Research Fund was started which amounted to £34,000, and experiments on horses were conducted. In 1894 the death-rate from that disease was 593 per million; it was now 872. The more vivisection the higher climbed the death-rate. Whooping cough had not been attacked by the vivisector, and under the care of the doctor the death-rate had gone down from 425 to 285; scarlet fever was in the same position, and the death-rate had fallen from 402 to 125 in ten years. In 1884 there were 419 deaths per million from measles, now the deaths were 274; and dysentery, also free of the vivisector, fell from 1,008 in 1884 to 551 last year. This is a fine example of the way in which the antivivisectionist uses figures to bolster up his case. A Mr. Channing, who, it appears, is an ornament of the British Parliament, gave his hearers the interesting information that one of his relatives recently took a profound interest in the United States against the extension of the practises they condemned, under various disguises, to human beings in hospitals! He added that people should realize that those who could torture animals were capable of carrying the spirit of inquiry that far. On the whole, the dominant note of the speeches was one of depression. The subject of vivisection excites little interest; the more sensible part of the public was so disgusted with the methods of the antivivisectionists as revealed at the trial of Bayliss *vs.* Coleridge two years ago, that they will not listen to the fanatics who denounce experimental research.

The Midwives' Act, which was passed in 1902, came into operation on April 1. It was bitterly opposed by a section of the medical profession, ostensibly on the ground that the attendance on women in labor by other than qualified medical practitioners would be hurtful to the community, but really, it is to be feared, for less avowable reasons. It was proved, however, that there was a crying need for the provision of proper care for a vast number of women too poor to pay a doctor. The average number of deaths of mothers in England from puerperal fever is now between 2,000 and 3,000 a year, and 30 per cent. of people in four institutions for the blind have lost their sight from ophthalmia, caused by insufficient care at birth. It is estimated that 60 to 70 per cent. of births, and in very poor districts even more, are attended by women. Admittedly, these women have been quite inadequately trained; many, indeed, have had no training at all. The result is that their methods are bad; they are not scrupulously clean, and they lack knowledge of antiseptics. The Midwives' Act is intended to counteract this state of things. From April 1 no woman may call herself a midwife unless she is certified by the Central Midwives' Board, and after five years' grace no one may practice for fee or reward unless so certified. From April 1 no one will be certified without passing the examination of the Central Midwives' Board. The old midwives are resigning their practices very largely, not caring to comply with the new regulations, or being afraid of inspection. Great hardships will thus be inflicted on the poor, unless other trained women can take the places of those giving up. Many County and County Borough Councils are therefore giving scholarships or grants to training schools for the purpose of training women as midwives.

An outbreak of bubonic plague is reported at Leith, a seaport near Edinburgh. A laborer residing in one of the poorer quarters of the town was admitted to the Infectious Diseases Hospital suffering

from what was believed to be typhoid fever. Two days later the development of the disease led the medical officer of health to suspect that it was bubonic plague. This suspicion proved correct, and the man died. His widow and two children are also suffering from plague, and they have been placed under observation. Energetic measures are being taken to prevent the spread of the disease. Twenty-five occupants of the tenement in which the family lived have been removed to the reception house for observation, and the authorities have taken measures to close the dwellings. The plague, it is thought, may have been brought by rats from some ship at the docks. The public health committee has therefore sanctioned the engagement of several rat-catchers. Extra staffs are also to be engaged by the Public Health Department, and special precautions will be taken in connection with the shipping at the port. The continued spread of plague in India is causing great anxiety to the Government. Inoculation by Haffkine's method confers merely temporary immunity and the serum treatments have not proved very satisfactory. Moreover, there is great difficulty in inducing the natives to submit to such measures. The Viceroy and many of the most prominent officials in India have been inoculated by way of example, but the mild Hindu simply shakes his head knowingly and says that the stuff used for Europeans is not that employed for the natives. Things are therefore at a deadlock. All the efforts of the official sanitarians have hitherto proved almost futile. The matter is a very serious one not only for India but for the world at large.

## SPECIAL ARTICLE.

### DINNER TO DR. THOMAS ADDIS EMMET.

Over one hundred physicians assembled in the banquet hall of Delmonico's on Monday evening, May 29, in honor of the seventy-seventh birthday of Dr. Thomas Addis Emmet, the distinguished gynecologist, of New York, whose work attracted so much attention all over the medical world and brought American medical science to the notice of European clinics almost more than that of any other American surgeon of his time. The dinner was presided over by Dr. E. C. Dudley, of Chicago, who congratulated Dr. Emmet on the fact that he had been so judicious in the choice of a birthday, since the 29th of May was also the date of his own entrance upon this mundane sphere.

**Emmet's Character.**—Dr. Dudley said that while Dr. Emmet's scientific abilities, his patient investigation of difficult questions, and his ingenious application of his knowledge in the solution of them, had made him famous, it was for qualities of heart rather than of head that so many distinguished medical men from many parts of the country had gathered together to do him honor. Of the virtues that befit the physician, Emmet had exhibited all with a brilliancy that could not fail to attract attention. Modesty and philanthropy in the best sense of the word, kindliness toward friends and to his patients, gentleness to those in need, and sympathy for all those with whom he came in contact, were his most prominent characteristics. The roll of his good deeds, and long enough it is, is known by many, yet the number of those unknown are surely greater. Civic virtues, too, he exhibited in a way that makes his life an exemplar for the present and the coming generation. And yet there was in the midst of all this a simple humaneness of sympathy that attracted all those who knew him. As the spectrum contains all the briliant colors, yet when combined gives only the mild radiance of pure white light, so Emmet the man seemed the brother and the teacher friend rather than the distant scientist and philanthropist to those who knew him.

**Genius of Industry.**—Emmet came of preferred not common stock, and one of his most prominent traits of character is the absolute absence of all pettiness, as also of all pretence. He had the moral courage of his convictions, and the persistence of character that enabled him to follow out his ideas in a very wonderful way to happy issue. Above all he had the faculty for hard work. Yet work did not seem hard to him, and after watching him you were always tempted to think that what he was doing was easy, even though it might be time-taking, until you tried it yourself. Emmet's work raised up the science of practical gynecology to a standard it had never reached before and his ideas were fruitful sources of further advances, though when the account is made up it will be surprising how little in reality has been added to the groundwork of science laid by Emmet.

Dr. Dudley then introduced Dr. William M. Polk, of New York, who spoke of Dr. Emmet as a surgeon.

**Surgical Career.**—Dr. Polk said that all that Dr. Emmet had done for gynecology is even yet not appreciated. The reaction against operations in the more recent times has brought some of Emmet's ideas more into prominence than they have been at any time in the last thirty years. Above all, Emmet realized the limitations of surgery. While he could see many sides of the question and realize and be ready to recognize the value of the work of others along lines quite different to his own, he recognized more than any other when it was true of the art of surgery that it might be said, "Thus far shalt thou go and no further." With regard to many of the chronic forms of pelvic inflammation he said long ago that not radical surgical treatment, but local treatment, in various forms and long continued, would eventually give the greatest measure of relief. This conclusion the gynecologists of to-day, after many years of experience with operative methods, are now ready to acknowledge as the most hopeful principle in treatment. Emmet thus anticipated modernity and the work of the generation of active workers following his own.

**Bedside Teaching.**—Dr. Polk told the story of once having asked Dr. Emmet to do some lecturing in a medical school. Dr. Emmet said that he was not a lecturer but a teacher. Those who for years from all the United States flocked to the Women's Hospital to take advantage of his teaching realized this better than it can be told in words. If the modern method of teaching by means of actual demonstration from the patient has come to vogue in recent years, most of it is due to the example so well set by Dr. Emmet. His teaching was of the most practical and helpful character. Ideas that were obtained were not vague and indefinite, but just such as could be used with most advantage in the actual practice in medicine. Theories were not exploited, but observations were made and actualities demonstrated. In the history of the rise of medical education in America to its present high standard the name of no man stands higher than that of Dr. Thomas Addis Emmet.

**Dr. Emmet, the Litterateur.**—Right Rev. John Farley, Archbishop of New York, was then introduced and spoke to the toast of Emmet as a writer on subjects apart from medicine. He said that while he was the only non-medical man present, that fact only added to

his readiness and his happiness to have the privilege of bringing his tribute to his friend, Dr. Emmet. The injunction of Ecclesiastes is, honor the physician, for in the day of illness you will fall into his hands. Dr. Emmet's literary work that has attracted most attention is undoubtedly his England's Misrule of Ireland for Seven Centuries. This book serves to show very well that while physicians may greet him as a leader in his own profession, he knows many things apart from his life work. An American born, but with the blood of distinguished Irishmen in his veins, he set himself to show the world what were the reasons why men of Irish birth and Irish ancestry must ever hold in detestation, the part that England has played in Ireland's history. While his ancestry made the motive *noblesse oblige* the principal motive of his book, the cause of truth must have been the main directing idea. Nine hundred volumes were consulted in the preparation for it, and the last word on the subject is said for this generation. His conclusions are worthy of the greatness of soul of a really great man. He preaches patience to Ireland as a panacea for all her ills, and penance to England for her errors in the treatment of the Irish.

**Dr. Emmet, the Teacher.**—Dr. W. H. Baker, of Boston, said that the striking characteristic of Emmet as a teacher was his originality of idea, his thoroughness of execution, his ingenuity and skill in the application of right principles, and the magnetic personality by which his ideas were conveyed to his pupils in all their fulness. His success may very well be judged from the fact that his pupils are holding positions of importance and prominence all over this country, and that they are thus giving a wide sphere of influence to his teaching. Better than anythng else for his pupils, was Emmet's own example in his relations to his patients. Once upon a time he showed to Dr. Baker a woman who had been bedridden for nine years and under treatment for many years, but who at last was completely cured. In another case over twenty operations had been done in his effort to cure an inveterate condition, and it was hard to understand which was most to be admired, the patience of the operator or the utter confidence of the patient which eventually allowed of a good result in the case.

**First Teacher of Asepsis.**—One of the most admirable features of Emmet's teaching was his insistance on absolute cleanliness in the patient to a degree that was considered quite unnecessary at that time. The other feature was the cleanliness of the surgeon with cleansing of hands, that was most punctilious at a time long before Lister's ideas began to circulate, or before Pasteur had shown the necessity for such precautions. The Woman's Hospital in New York was for many years a monument to Emmet's infinite capacity for taking pains. The new Woman's Hospital that is rising on the Heights will be a memorial of his life work, for there would have been no Woman's Hospital but for what he showed could be accomplished.

**The Medical Author.**—Dr. S. C. Gordon, of Portland, Maine, said that the distinctive feature of Emmet's work at the Woman's Hospital was the permeation of all that he did by common sense. His method of teaching was typical of this quality. Only a few students were admitted to see the operations, but they literally sat at his feet and saw the wonderful work that he did close up and never so well done as he knew how to do it. This quality of common sense pervades Emmet's text-book on the practice of gynecology, and though now it is considered by the present generation as out of date, this is unfortunate, for it will be found to contain, either in actual teaching or practice, all that is taught to-day. In attention to detail there is no text-book on gynecology that can compare with it. Many a more modern text-book has been made out of it, more or less unconsciously at times, and very few of them contain more than Emmet has, except in the matter of illustrations. Emmet was indefatigable in research, ceaseless in industry, and his text-book shows his power of observation. He told things as he saw them. Such observations are never out of date, and are always a source of interest.

**Emmet as a Friend.**—Dr. George Tucker Harrison, of New York, said that Emmet's friends were literally bound to him, in the words of old Polonius, by hooks of steel. Besides this inner circle of friends, few men have ever had so many professional brethren who considered themselves as enjoying the privilege of friendship. His personality was such that all those who approached him felt the intimate sympathy of the man. All over this country there are students from the Woman's College Hospital who feel a close relationship to Emmet, and who value this feeling as one of the privileges of their professional life. It is because of this that so many have gathered to honor him to-night, and that honor must represent the friendly feelings that all are so ready to exhibit on an occasion like this.

**The Patriot.**—Dr. Francis J. Quinlan, of New York, said that the Emmets had been originally English who settled in Ireland some seven centuries ago, like so many other of the English who lived in Ireland, intermarried with the natives and became more Irish than the Irish themselves. Seven generations of the Emmets have been distinguished physicians. At the end of the eighteenth century it was an Emmet who led the first movement against English tyranny, and out of the sentiment created by the cause for which Robert Emmet died has sprung all of the modern movements that have benefited Ireland so much. When the Emmets came to America, in a generation they became as American as any of those who had been here for generations. Patriots they have been in both countries, well worthy the honor of their fellow citizens. Thomas Addis Emet conferred honor on the land of his adoption, and the Emmet who is being honored to-night has, by his book on England's Misrule of Ireland, done more to set Ireland's cause fairly before the world of letters than any man of his generation. For the men whose lives mean much for the countries in which they lived there cannot be too much honor, and so the tribute of this evening is only an expression of feelings pent up so long that at last they had to find issue.

**Fame Abroad.**—Sir William Hinkson, of Montreal, said it was a pleasure and a privilege for him to accept the invitation to be present at the dinner for Dr. Emmet, for besides the reverence for his scientific work, to know him was to love him and respect him. In traveling over Europe Dr. Hinkson had found that no name was so commonly mentioned in continental clinics as that of Emmet. This was true not only in the larger cities, but even in the smaller university towns. Practical gynecologists thought no encomium too high to pay to his worth as a man and a physician. Personal friends of his know that he well deserves the expression that the French inhabitants of Canada sometimes use with regard to a man whom they thoroughly respect—"that he is white all through." It is not this operation or that; it is not his book, that means most in Emmet's career, but it is the example of his sterling honesty in his profession and the fact that he has never done anything small or petty. Never did he do an operation for the sake of doing it. With re-

gard to one operation which has been much vulgarized in recent years, Dr. Emmet once said to Dr. Hinkson that he would rather that a few women should have suffered without alleviation than that so many should have been operated upon without reason, and that he would almost prefer not to have been the originator of the operation. Dr. Hinkson said that in Canada Dr. Emmet's estimation is at least as high as in his native country, and the tribute he bears represents the feeling of the profession across the line.

**Some Memories.**—In his closing address, Dr. Emmet said that an Irish friend of his, who was very old, announced that he expected to see his friends only once more, and that at his funeral. Personally he is very glad that he has the opportunity to see his friends before the funeral. During the week that has passed since he learned of the dinner that was to be given him, he has felt that if he were a woman he would go off into a corner and have a good cry over it. Some of the memories of the past come crowding back, and perhaps there is nothing that he could tell of more interest. Since the age of thirteen he has had to hoe his own row. As a boy he had been a kind of a Buster Brown. He never cared to walk, and many a time has had his ride through the streets of Charlotteville on a razor-back hog. As he grew older he preferred to roam the mountains with his gun to working at his books, until finally he was dismissed from college. Drink or cards meant no temptation to him, but the sunlight was irresistible. Dunglison desired him to study medicine. After he had heard his first medical lecture he knew there was something ahead of him. He lived on two dollars a week and all his expenses were kept under three hundred dollars a year for the four years at Jefferson. MacNevin suggested the taking of the examination for the Emigrant Hospital in New York, and Dr. Emmet had charge of 250 patients suffering from ship fever. In ten days he was down with the disease himself. After his recovery he interested himself in every detail of the hospital work. He volunteered to make the autopsies and made over one thousand. After his service as resident he was given a position of visiting physician, though he was twenty years the junior of the next man on the staff. He was making four dollars a day and got married on that. Then came Sims and the Woman's Hospital experience, and his vocation in life was decided. When he came to New York he had $300 and was very glad to make visits in the tenements for 25 cents a visit, and was especially rejoiced when the money was paid on the spot. He has been blessed beyond the average, and something of the blessings he has tried to pay for by helping young medical men when he could. At seventy-five he began the study of Irish, and has found it one of the consolations of his latter years. To all physicians he would say, have a hobby and get as much fun out of it as you can. A celebration like this to-night makes him feel forty again, and the only thing that he can wish to all the friends who have been so kind to him is that life may flow on as full of sunshine for them to the end of a long, long life, as it has for him.

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**Dr. Stimson Arrives in Safety.**—Dr. L. A. Stimson, who took part in the recent yacht races across the ocean, has arrived safely in his Fleur de Lys, after a very stormy passage. The Fleur de Lys was the smallest boat in the race and crossed the ocean in fourteen days and nine hours. For a considerable part of her passage she encountered very adverse weather conditions.

# SOCIETY PROCEEDINGS.

## ASSOCIATION OF AMERICAN PHYSICIANS.

*Twentieth Annual Meeting, held at Washington, D. C., May 16 and 17, 1905.*

SECOND DAY—MAY 17TH—(*Continued*).

(Continued from Page 1000.)

**Experimental Arteriosclerosis.**—Dr. Richard M. Pierce, of Albany, said that until recently there has been no experimental method of producing arteriosclerosis. It has been produced, however, by continued injections of small amounts of adrenalin. When animals are injected on alternate days for several weeks, even though there may be no gross morbid appearances in the aorta, with the microscope the elastic fibres are found to be disturbed in their arrangement, and there is a mechanical injury to the artery. Increase in the doses of adrenalin leads to calcareous degeneration, so that the artery may break between the fingers. Yellow plaques are then to be seen on the surfaces of the artery, and small bulgings are noted corresponding to diffuse aneurisms. In one case distinct degenerative changes were found in the ganglion cells near the aorta. Some of the changes in the aorta may be due to this fact.

**Phlebosclerosis of Veins.**—Dr. C. F. Martin, of Montreal, said that degenerations of veins have long been recognized. It has been considered that they are due to the same causes as in the arteries. As a rule, however, peripheral veins are much more affected than any others. The veins of the lower extremity suffer most. Changes are often present, however, also in the upper extremities. Such venous degenerations are common in young persons. Many of the cases studied occurred in persons under twenty, and all of them were under thirty-five. Certain veins suffer much more than others. Degeneration is extremely common in the internal and external saphenous veins. The affection is more common in males. It is usually not accompanied by arteriosclerosis. There is no portal obstruction, as a rule, nor, indeed, any other cause for the development of the condition. There are no evidences of inflammation.

**Metabolism in Acute Leucemia.**—Dr. Edsall, of Philadelphia, said that in leucemia there is usually a decided elimination of nitrogen. Curiously enough this same serious disturbance of nitrogen metabolism takes place in purpura. Magnus Levy thought that the loss of nitrogen in these latter cases was due to the hemorrhage. In the case under Dr. Edsall's observation, however, while the nitrogen and phosphates were increased very much after a hemorrhagic attack, the same phenomenon was noted in a subsequent attack which occurred without any hemorrhage. When leucemia is treated by the X-rays it is the nitrogen metabolism that is affected, and this constitutes one of the signs of curative effects.

**X-Rays in Leucemia.**—Dr. Edsall has studied five cases of leucemia which were treated by the X-ray. In three of them apparent cure took place, but was followed subsequently by relapse and death. The curative effect seems to be due to some reaction of the organism to the X-rays rather than to any direct effect of the rays. Later on the organism fails to respond as at first, and then the X-rays fail to be of any use in the treatment of the disease. Undoubtedly one of the dangers of the promiscu-

ous use of the X-rays should be noted. There is a sudden increase of metabolism, and consequently great elimination through the kidneys. This may give rise to acute nephritis with shortening of life, especially in persons who are not over strong.

Dr. Edsall has tried the X-rays in diabetes, but without producing any effect. His idea was that they might affect sugar metabolism in some way, as they do proteid metabolism is leucemia. In a case of unresolved pneumonia a series of short exposures of the patient to the X-rays brought about a rapid resolution so that at the end of a week it was impossible to tell without the chart on which side consolidation had been present.

Dr. Francis Williams, of Boston, said that the X-rays can now be measured just as other forms of light. The principle is somewhat that of the photometer. In this way the dose of the X-rays can be carefully determined. There is need of such careful determination, for tubes vary very much, and may change from day to day, so that at every application their condition should be determined.

Dr. Ewing, of New York, said that there seemed to be some relationship between acute leucemia and acute yellow atrophy of the liver, even beyond that of the metabolic relation. In a recent case where leucemia developed following pregnancy, identical lesions of the liver were found with those so often seen in connection with yellow atrophy. Of course, this may very well be due to different causes, and the cause of the relationship of the diseases cannot be claimed. With regard to the curative effect of the X-rays in leucemia it must not be forgotten that all of the cases so far treated with apparent success with X-rays for some time have relapse. There are three cases now figuring in medical literature as cures by the X-rays, autopsies on which have been made.

Dr. Edsall, in closing the discussion, said that the most interesting feature of the effect of the X-ray is undoubtedly the fact that the individual patient must react to them. This reaction is quite prompt, as a rule the first time the X-rays are used in leucemia, unless the disease is very far advanced or the patient's vitality has been exhausted. Subsequently, however, this reactionary power disappears, and then the X-rays fail to do any good.

**Chronic Acetanilid Poisoning.**—Dr. D. D. Stewart, of Philadelphia, reported a case that for a time was considered to be pernicious anemia. It had all the clinical symptoms of that disease, including the pallor with yellowish tinge, the tired feelings, and the digestive disturbances, as well as all of the blood symptoms. There were many different forms of red blood cells, small and large, and there were megaloblasts and normoblasts, and there was a difference in the color-staining properties of the red cells. After a time it was found that the patient had been for many months taking some forty grains of acetanilid per day. As soon as the drug was stopped improvement set in and recovery took place. It is evident that the free use of these pain-dispelling remedies for headache and other vague neuralgic conditions may produce serious disturbances of the blood equilibrium.

**Bacterial Toxins and Immunity.**—Dr. Victor C. Vaughan, of Ann Arbor, Mich., gave a brief report with regard to certain recent researches in his laboratory on bacterial toxins and immunity. He is of the belief that the animal cells, as, indeed, the cells of all living bodies, is a definite chemical compound. The bacterial cell is also such a definite compound. Around this compound there gather various side chains which may become loosened, and then act as the toxin. Small cells, however, do not produce these loose side chains, but retain their products more in themselves. The diphtheria bacillus is an example of the first of these, and hence the facility with which an antitoxin for it can be produced. The family of typhoid and colon germs are quite different in this respect. It is with the colon germ that Dr. Vaughan's researches have been made. After growing a number of the bacteria all the ordinary solvents are employed to remove all soluble substances, the alcohols, ethers, water, etc., until all extraneous material is removed. Dr. Vaughan is of the opinion that all bacterial toxins, without exception, produce a lowering of the temperature in the animal body.

**Theory of Fever.**—Fever is really a resistance on the part of the individual to the invasion of bacilli and their toxins. When large amounts of toxic material are thrown into the circulation, then the temperature goes down. If smaller amounts are admitted to the circulation the resistance of the animal sends the temperature up for their neutralization. In animals massive doses of bacteria may send the temperature down far below 90° F., or even down to 75° F., before death occurs. By the injection of colon bacilli from which all soluble substances have been removed such lowering of the temperature may be produced. If the living cells be introduced, the same effect is produced and the pathological result, when the injection is made into the peritoneum is the same in both cases, namely, a hemorrhagic peritonitis. The living cells and the dead insoluble residue have the same effects then in both ways.

**Immunity.**—Dr. Vaughan has shown that it is possible to immunize animals with the non-poisonous part of the colon bacillus. It seems not impossible, then, that a more definite idea of immunity will be reached, and that as the result of the employment of dead material of definite chemical composition the scientific basis of the immunity reaction may be determined.

Dr. William S. Welch, of Baltimore, said that personally he is not of the opinion that the toxins of bacteria, as now studied in the laboratory, are or represent the true specific poison of bacteria. For instance, it has been impossible ever to produce the specific effects of typhoid fever on Peyer's patches and the like. Impure forms of the toxin are known, but other methods of investigation have to be found before the real specific poison can be reached. As for any immunity obtained by killed cultures of bacteria it is only of comparatively slight degree and passing in character. Behring, with living cultures of the tubercle bacilli, produces enduring immunity. The study of the immunity produced by dead cultures is not likely to be of much importance. There is no doubt that Dr. Vaughan's researches are eminently suggestive, and that they furnish data for further investigations, but as yet scarcely more than this. There is, of course, a difference of opinion among bacteriologists as to the way in which bacteria produce their effects. Some consider that it is the death of the bacteria in the system which causes harm. The other opinion is that it is the growth of the bacteria, with the constant production of toxic substances during that growth, that is the real reason for disease.

Dr. Vaughan, in closing the discussion, said that, as might be expected, there is, of course a differ-

ence of opinion between the biologists and the morphologists with regard to the method of action of bacteria on the human body. This disagreement is not likely to be bridged over. Dr. Welch thinks that bacteria produce different toxins in cultures from those which they produce in the human body. It would seem, however, that bacteria furnish substances just as does the poppy, for instance, no matter where it may grow. Of course, immunity obtained from dead cultures is not enduring. It only enables us to study the problem of immunity in a limited way. No general conclusions can as yet be drawn from the researches that have been made.

**Acromegaly.**—Dr. Charles L. Greene, of St. Paul, said that the case of acromegaly he reports has been under observation for the last five years, though now about to succumb to the disease. The affection began with changes in the bones of the forearm and of the legs, spreading later to the hands, but for a considerable time not to the feet. A distinctive characteristic was the enlargement of the superior rather than the inferior maxilla. There was a hard edema of the feet and shoulders, for which thyroid extract was given at intervals with good effect. As the patient did not complain much of the edema, it was considered better not to continue the thyroid medication. After a time, in the progress of the disease, there came a shrinking of the thyroid and then the myxedema. Later, as the bones of the shoulder girdle were affected, the patient developed a decided stoop. The first part of the foot that became much affected was the great toe, and this took on extreme enlargement.

Dr. S. Solis-Cohen, of Philadelphia, said that personally he had had under observation a case with this peculiar combination of acromegaly and myxedema. In that case, too, the myxedema yield to thyroid extract. There seemed to be no doubt about the genuine character of the acromegaly, since, though no autopsy was obtained, the patient suffered from a bilateral temporal hemianopsia. This, of course, would be occasioned only by a tumor in the neighborhood of the hypophysis cerebri.

**Cirrhosis of the Liver.**—Dr. A. O. J. Kelly, of Philadelphia, said that recent studies of cirrhosis of the liver bring out more clearly than before the true nature of the disease. While it is the custom to think of the overgrowth of connective tissue which produces the fibrosis, the most conspicuous feature of the pathological picture, the parenchyma should also receive attention. The characteristic feature of the changes in the cells of the true liver substance is the disarrangement of the normal composition of the liver. Many of the acini will be found to have no central vein. In others the central vein is eccentric, while sometimes what looks like a central vein will be found in the midst of connective tissue. There has evidently been an overgrowth of liver cells during the course of the destructive process at work. This hyperplasia of the liver cells is very striking, and there are many evidences of it. A number of mitotic figures are found, and the irregular arrangement of the new-formed cells is shown by the fact that they are deposited in tissues older than themselves. These younger cells have no pigment in them and no fat, though the substances are characteristic of the liver cells.

**Pathological Process.**—It would seem that the beginning of cirrhosis is due to some cell poison which produces necrosis of liver cells at a time when the liver is still capable of attempting to make up for its loss by hyperplastic reaction. As a consequence of this, there occurs a rearrangement of the liver cell with the disturbance of the position of the central vein, but not very much atrophy in the liver itself. While the atrophy is supposed to be the prominent symptom of cirrhosis, it is not near so common as is thought, and a certain amount of hypertrophy is much more common than has been imagined, even at advanced stages of the disease.

**Enlargement of the Liver.**—Notwithstanding the impression with regard to atrophy of the liver and the name atrophic cirrhosis in over 40 per cent. of the necropsis made upon subjects dead from cirrhosis of the liver, the organ is found to be enlarged. In fact, in nearly all cases in which ascites occurs in the terminal stage the liver is found to be enlarged. The ascites is not due, as has often been said, to interference with the portal circulation by the occurrence of contraction of the liver, but is due, rather, to changes in the peritoneum. Not infrequently tuberculous peritonitis is found to be present. As a matter of fact, a second reinfection with tubercle bacilli on the peritoneum seems to be of very frequent occurrence in cirrhosis of the liver.

**Artificial Cirrhosis.**—Dr. Richard M. Pierce, of Albany, N. Y., said that of late it has been found that artificial cirrhosis of the liver could be produced. The most characteristic feature of this is the production of new tissue which gives some idea of the course of cirrhosis. When produced in animals, however, the cirrhotic process does not occur at the periphery of the lobule, as in man, but near its center. This, of course, produces a very different pathological picture, and yet is suggestive because the production of fibrous tissue so closely imitates that seen in human beings.

**Exophthalmic Goiter.**—Dr. MacCallum, of Baltimore, said that as the result of a study of twenty-eight cases of exophthalmic goiters the question of the definite lesion in this disease would seem to be answered. It has sometimes been said that no definite specific anatomical change can be found. This is especially asserted by German observers, but the difficulty seems to have been that they were working in a region where endemic goiter is so frequent as to obscure the proper picture of exophthalmic goiter. In the cases examined at Johns Hopkins the change found in the thyroid resembles a compensatory hypertrophy. There is a budding or proliferation of the alveoli of considerable extent, so that some of the alveoli seem to be separated from others, and to be, as it were, out of direct connection with the others. These changes are not of equal intensity all over the gland, nor are they always proportionate to the severity of the symptoms in the particular case.

**Other Pathological Conditions.**—Careful study has been made of the parathyroids, but these have been found to be normal in nine cases in which careful investigation was made. There are subsidiary changes in the lymphatics of the thymus gland, and this organ is at times enlarged and persistent. The course of the affection seems to be that there is primary injury of the thyroid gland, which is followed by thyroiditis. As a consequence a proliferation ensues with the cutting off of some of the new-formed tissue from the regular lymphatic system of the thyroid gland. Hence, the absorption of thyroid substance in too great degree. Some changes in the lymphatics in the neighborhood of the thyroid gland have also been noted.

Dr. MacCallum, in answer to a question, said that he had not examined the cervical sympathetic in

these cases, but that there did not seem to be any necessary connection between the thyroid and the sympathetic in the neck. Some surgeons, as Jonesco and Jabolay, had reported improvement of patients suffering from exophthalmic goiter after the removal of the cervical sympathetic, but these cures had not been confirmed by others. It is easy to understand how the removal of the cervical sympathetic would favorably affect the exophthalmos. It would be hard to understand, however, in what way it could affect the other symptoms of the disease. Of course, the claim had been made that all the symptoms of exophthalmic goiter had been relieved. This is, however, a dubious matter.

## NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

*First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.*

FIRST DAY—MAY 18TH—(*Continued*).

(Continued from Page 1003.)

CLINICAL AND CLIMATOLOGICAL SECTION—(*Continued*).

**Pulse and Blood.**—Dr. De Lancey Rochester, of Buffalo, said that the pulse is distinctive in early tuberculosis, and should be more insisted on. It is rapid, especially after even slight exertion, and is usually of low volume. The characteristic symptom in the blood is a lessened number of white blood cells. In a recent case in which there was persistent cough, but no physical signs, there seemed to be quite enough changes in the mucous membrane of the nose and throat to account for the expectoration which occurred. After several examinations, the tuberculin test was applied, and proved of good service. In cases where there is suspicion of tuberculosis, the nose and throat should be carefully examined at the very beginning.

**Medical Students.**—Dr. Potter, of Indianapolis, said that it is a matter of surprise to find how few medical students have any proper realization of incipient tuberculosis. In a recent test of his own junior students at Indianapolis, only three out of eighty had any good practical idea in the matter. Part of this is due to the fact that typical cases are taken for the sake of study, and advanced cases rather than those in the initial stage, which do not give such satisfactory symptoms, for purposes of study.

**Mitral Stenosis and Pulmonary Tuberculosis.**—Dr. Howard Anders, of Philadelphia, said that too much dependence must not be placed on the patient's physique, and it must not be allowed to influence the physician's judgment too much. In certain physiques the presence of mitral stenosis, with its tendency to cause whatever colds are contracted to be prolonged, with its tendency also to produce slight pulmonary hemorrhage, may very easily and indeed is often mistaken for pulmonary tuberculosis. With regard to auscultation for mucous clicks or crepitant râles, Dr. Anders suggests that if the regular method of examination is proceeded with in the usual way, some aids to diagnosis may be lost. It is probably only during the first few deep breaths that râles are heard in very incipient cases. If during the course of inspection the patient is asked to breathe deeply the opportunity to hear these râles is lost. On the other hand, it must not be forgotten that tuberculosis patients are often poor breathers, and that there may be atelectasis of a lobule of the lung which may, during percussion, cause a difference in the note as compared with the other side. On the other hand, there may be a small area of collapsed lobule, which at a single deep breath may produce adventitious sounds when the vesicles are being opened up. These are the refinements of diagnosis, but represent the care needed for the obtaining of definite knowledge.

**Holding the Breath as an Aid.**—Dr. Alfred Mayer said that in examining tuberculous patients he is always careful to examine their hearts also. During this time he asks them to hold their breath. Immediately after this he has them breathe deeply, and then transfers his stethoscope to any suspicious part of the lung, and is usually able to hear any râles that may be present. This bit of technic of having patients hold their breath makes up for the deep breathing during inspection. Dr. Mayer said that the general impression among those who have seen most tuberculosis, is that the affection is very seldom associated with mitral stenosis. As a result of a leakage of the mitral valve, there is a backing up of blood in the lung and the consequent production of congestion. This seems to act as a protective against the invasion of tuberculosis, or at least prevents its rapid course. It must not be forgotten that mitral disease may give rise to infarcts in the lung, and that these may seem to be areas of tuberculous infiltration later on.

Dr. Solly, of Colorado Springs, said that recently he has found the X-rays very valuable in the diagnosis of early cases of tuberculosis.

**Exact Thermometry.**—Dr. C. L. Minor, of Asheville, N. C., said that he has usually been careful to buy only the most highly recommended thermometers. He has insisted upon having those of a well-known London maker, each one of which is issued with a certificate declaring that it has no errors. Recently he obtained six dozen of these thermometers and sent them to the U. S. Government testing bureau, in order to be sure of their exactness. The Government does not pass any thermometers which vary by more than three-tenths of a degree. One dozen of these certified thermometers were rejected entirely. All of them had some error, notwithstanding the statement on the certificate that there was none, and in only a few of them was the error less than one-tenth of a degree. It is necessary then to have thermometers carefully tested, and not by the maker of them. Dr. Minor considers that the use of the blue pencil in delineating affected areas and the movements of the diaphragm in tuberculous cases is unfortunately neglected to a great extent in this country. It represents, however, the only way to be sure about diagnosis.

Dr. Pryor, of Raybrook, N. Y., said that a distinctive characteristic of tuberculous affection was the change in the pitch of the whispering voice.

Dr. Mannheimer, of New York, said that the roughness of the expiration in tuberculous disease is due not only to congestion of the mucous membrane of the bronchi, and to the presence of secretion on the mucous surface, but also to a certain amount of tuberculous peripneumonia. With regard to terms, it is important to be careful, since very few physicians agree as to the exact significance of such names as the mucous click.

**Open-Air Treatment of Surgical Tuberculosis.**—Dr. William S. Halstead, of Baltimore, said that while so much had been done for pulmonary tuberculosis by means of the open-air treatment, little had been accomplished for the patients suffering

from surgical tuberculosis. Fifteen years ago, when he came to Johns Hopkins, he resolved to try the effect of the open-air treatment on some of these cases, and the results have been most promising. At the beginning there was difficulty of persuading patients of the possibility that fresh air could do much for deep-seated lesions. One patient asked how air, even though ever so deeply breathed, could reach the bone? As more and more patients were improved, however, by this simple method of having them live in the open air, it became easier to convince others, until now there are some sixteen patients who have been treated successfully in this way.

**The King's Evil.**—This is not, however, the first time that this method of treating surgical tuberculosis by open air has been exploited. There are century-old traditions of the cure of scrofula in England, by means of the king's touch. Patients traveled from long distances to be touched by the various English kings, and there is no doubt that many of them were cured. The therapeutic agent that proved so effective in these cases was mainly the opportunity that such patients had for outdoor life for long periods, together with the change of scene, and then the influence of suggestion, in their assured hope that they would be cured by the king's touch. It was the custom also to consider it a privilege to feed such patients well, as alms-giving, on their way to and from the ceremony for touching for the evil. Besides a certain sum of money was furnished to each of those who were admitted to the king, and this enabled them often to live better than they had for a considerable period before. This was then just the fresh air and abundant diet treatment of most modern times.

**Acute Affections and Fresh Air.**—Besides the chronic surgical affections, certain acute disorders have proved quite amenable to the fresh-air treatment on the bridge at Johns Hopkins. A very notable example of this is the case of a young girl who, after operation, suffered from septic infection. Her temperature ran from 101° to 106° F., and she had the chills and sweats of a septic condition. After vainly being treated within the hospital, she was transferred to the bridge, and while in the open air began to improve at once.

**Illustrative Cases.**—Dr. Halstead then gave some examples of the improvement of patients suffering from tuberculous affections of bones, after their removal to places where they spent most of their time in the open air. In one case of Pott's disease with sinuses, the patient began to gain in weight at once, and with the gain in weight there came a gradual closing of the sinuses. In a hip-joint case that had lived for seven years in the mountains, but with the open-air treatment improperly understood, gained 11 pounds during a few weeks in the open air of the Adirondacks properly understood. Motion returned in the hip, and then she began to indulge in dancing and neglected outdoor air-treatment. Later there came a swelling at the wrist, which proved to be tuberculous, and had to be opened. The patient gained 16 pounds in weight in a month at Saranac, and the condition in the wrist improved with a rapidity never seen in hospital treatment. In a patient suffering from sacroiliac disease, the tuberculous abscess filled the pelvis almost completely. After a slight operation, she was removed to the Adirondacks, and at the end of a season had gained 36 pounds, and no sign of the abscess was left.

**Enormous Cervical Glands.**—One of the most interesting cases under Dr. Halstead's observation was that of a young woman suffering from enormous cervical glands. These occurred on both sides of the neck, and were as large as cocoanuts. The swelling was hard and nodular, and each gland seemed to stand out separately. It was considered to be Hodgkins' disease at first. A gland was removed for diagnostic purposes, and was found to be tuberculous. All the glands on one side were then removed surgically, but the patient seemed scarcely able to bear the removal of the glands on the other side at that time. She was sent to the mountains, and after six months the enormous glands on the other side had completely disappeared. She was left then without an ugly scar, that would otherwise have been present, and which, it must not be forgotten, is so apt to become keloidal in tuberculous cases.

**New York Experience With Surgical Tuberculosis.**—Dr. John W. Brannan, of New York, stated the experience with the treatment of surgical tuberculosis by means of the open-air regime. Patients were kept all last summer in tents at Coney Island, the tents being perfectly open, and did so well that when the winter came, it was resolved to continue the open-air treatment. The windows of the ward in which the children slept during the winter time were open on two sides for all the winter. They were closed only for a short time while the children were dressing in the morning and going to bed at night. The children slept well and did not complain of the cold. In this open air the starting pains at night were extremely rare. While the attending physician was required to keep his hat on on account of the cold, the children laughed at him for his suspectibility, and with red cheecks and warm hands played about him and evidently enjoyed it very thoroughly. On Christmas Day the children gathered around the bonfire in a snowstorm outside and listened to stories of Brer Rabbit. They are kept very warmly clad and wear hoods at night, and gloves, if there is any tendency for their hands to be cold. During the day their gloves are usually hanging around their necks. Sinuses that have proved most obstinate of treatment heal very kindly under this method, and patients begin to gain in weight at once, and retain their weight in spite of abundance of exercise.

**Tuberculosis Patients and the Native Population.**—Dr. C. F. Gardiner, of Colorado Springs, discussed the influence of the advent of tuberculous patients upon a native population. The experience in Europe, with sanatoria for tuberculosis in towns, is that far from causing an increase in the death-rate from the tuberculous in the neighborhood, their presence causes a decrease because of the knowledge of the disease which they disseminate, and the methods of prevention which they teach. The collection of statistics shows that even in such places as Nice and Mentone, where large numbers of the tuberculous gather, and where the disciple is not very exact, there is yet no increase in the death rates from tuberculosis in the population. It was thought for a time that the large mortality among the Kaffirs in South Africa, wherever they came in contact with civilization, was a contradiction to this proposition, but as a matter of fact statistics show, according to explorers, that even in the interior of the country, where the Kaffir population are away from the whites, there is also a large death-rate from tuberculosis. As a rule, native savage populations have very little resistive vitality, and the disease rages very virulently among them. It would appear that somehow as a result of

the spread of the disease a certain amount of immunizing influence has been exerted. There is no ground, however, for the fear that the establishment of tuberculous sanatoria will prove a danger for the surrounding population.

**Climate in the Treatment of Tuberculosis.**—Dr. C. L. Minor, of Asheville, N. C., as the Chairman of the Committee, presented the report on the rôle of climate in the management of tuberculosis. He said that in the past doubtless too much had been thought of the effect of climate in curing this disease. Now the pendulum had swung the other way, and too much was thought of fresh air alone, without any regard to climate. Undoubtedly some of the present depreciation of climate in the treatment of tuberculosis is due to the improper advice given to patients. They are told to go to a particular climate and live out and eat. As a rule, improperly controlled, they either do not improve in health, or, if they do, they return to their homes uninstructed as to the habits of life necessary to maintain their health and relapses occur. Besides this, many hopeless cases are sent, and the failure of these to improve helps to throw doubt on the efficiency of climatotherapy.

**Therapeutic Effect of Climate.**—It is impossible to say just what is the therapeutic effect of climate. But then, too, in spite of the advance in chemistry, it is impossible to say just what is curative in mineral springs. It is well known, however, that artificial mineral water, made after the most careful analysis, is not as effective as the original natural mineral water. As a rule, in favorable cases, the discomfort of tuberculous cases disappears sooner in a proper climate than under any other remedial measure. Climate is not a specific, and yet it has an undoubted effect. Climate is not the first element in the treatment of tuberculosis, diet and hygiene being most important; but it is a very important element. The most important qualities needed in the climate are sunshine and absence of rain. The almost absolute purity of the air in high altitudes undoubtedly is one of the effects of climatotherapy. Reinfection by pus micro-organisms and irritation by dust are the serious objections to life in cities and towns.

**Equability Not Important.**—It used to be thought that an equable climate without large variations in the temperature was an important element in climate; but it is now known that temperature variations stimulate most patients, and help them to improve more rapidly. Wind, if not directly upon the patient, has a good effect, probably because of the purification of the air. The temperament of the patient has much to do with the effect of climate. If patients are easily inclined to be homesick, and if they are intractable, then a cure need not be expected. Climatic resorts must be considered as universities, with the doctor in charge as a teacher instructing the patients, so that, for their own good, as well as for that of others, they may understand their condition, recognize the dangers of their disease and the methods of avoiding it, and of preventing relapses.

**Climate Not an Element in Tuberculosis Therapeutics.**—Dr. Lawrence Flick, of Philadelphia, said that while the report of the committee was conservative, he cannot agree with it. After twenty years of experience, first as a patient in nearly all climates, and then as a physician in charge of tuberculous patients who had tried all climates, he did not consider that climate had any effect in the treatment of tuberculosis. It is a common-sense method of living that is the important question for the cure of tuberculosis, and this remained so in any climate. He has obtained some of his best results in the slums of Philadelphia, under apparently the most unfavorable conditions. Proper life in the open air with appropriate diet and discipline are the factors that make for the cure of tuberculosis. Climate certainly can be considered in no sense an important factor. This must be insisted on, because three-fourths of the patients suffering from tuberculosis cannot seek a climate, and if climate is considered an important element in cure, they may easily become dicouraged.

**Sanatoria, Not Climate.**—Dr. Kein, of Iowa, said that it is sanatorium treatment in the climatic resorts, and not the climate itself, that does good for tuberculosis. Painstaking medical supervision is needed. Where this is missing no improvement follows. Thousands have gone from the Mississippi valley to various climates to be cured of their tuberculosis, and only tens have returned with decided improvement. Even of those not a few have suffered relapses. The important treatments for pulmonary tuberculosis are fresh air and diet, and not any special location.

Dr. Knight, of Boston, said the profession should be happy in the results that it can obtain at home. It is, however, not the tuberculosis that is to be treated, but the individual suffering from tuberculosis. A change of climate has an excellent effect, even on healthy individuals, increases their appetite, and gives them a new sense of vital activity. It will do this also for the ailing. It depends then on the particular climate on the individual. If homesickness becomes an important element, then the sending away from home is a mistake.

Dr. Weil, of Cincinnati, said that most of his clientele cannot go away for the benefit of climate. They must be cared for at home. Undoubtedly good results can be obtained by proper direction and discipline, with diet and fresh air at home.

Dr. Stevens, of Iowa, said that there is danger of a report like this doing considerable harm at the present moment. A number of the legislatures of various States in the Union are now engaged in considering the problem of erecting sanatoria for the treatment of those suffering from tuberculosis. They have been told that the disease is curable if taken in time, and that sanatoria erected in each of the States will be quite sufficient in bringing about cure, as those at a distance. If the present report, insisting so much on the importance of climate, be adopted, it may well embarrass legislation and put back for a time the necessary appropriations for carrying out of the beneficent work which it has taken so long to organize.

On motion, the report of the Committe was adopted as read.

### SOCIOLOGICAL SECTION.

### FIRST DAY—MAY 16TH.

The Section was opened by the address of the Chairman, Mr. Homer Folks, of New York, the ex-Commissioner of Charities of New York City, and Secretary of the New York State Charities Association. Mr. Folks recalled how much had already been accomplished in the crusade against tuberculosis all over the country, and especially in New York City, and then set forth the continuance of this work, as an excellent investment for the community. The public health is, after all, the basis of the citizens' earning capacity, and improvement in it can be reached in dollars and cents.

Looked at merely from a commercial standpoint, no greater benefit could be conferred upon any city in the United States than the eradication of tuberculosis within its limits, and the removal of all those suffering from the disease. The gains that have been made in recent years show the possibility of this, and show that the methods that have been employed may be rendered even more effective in the future. Like public parks, the city's health is a real investment.

**Return on the Investment.**—The benefits derived from large expenditures for the public health could not, it is true, be converted into cash, but it is not the habit of our cities to go into liquidation, and while the public health is not an available asset, in this sense of the word, it is nevertheless an economic asset of the highest value, contributing to the economic strength of the people, furnishing the foundation upon which the entire superstructure of municipal credit and life is built. A strong people, relieved of unnecessary burdens caused by sickness and death, can bear other and larger burdens of taxation for public purposes. From every point of view, therefore, it seems that no American city at the present time can find a more appropriate subject for permanent investment, yielding larger returns, than in carrying into effect the measures set forth at this meeting of the National Association for the Study and Prevention of Tuberculosis.

(To be Continued.)

## NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, held March 7, 1905.*

The President, Joseph Fraenkel, M.D., in the Chair.

**A Case for Diagnosis.**—The patient, presented by Dr. Smith Ely Jelliffe, was a woman thirty-three years old, a dressmaker by occupation. She had seven sisters and one brother alive and in good health. One sister had died of consumption. Her father, who was alive at sixty-five, was a hemiplegic. Her mother was seventy years old and enjoying good health. The patient had scarlet fever at age of seven years. Following this attack she was weak for a long time and would fall easily. There was no history of hemiplegia at this time. Later in childhood she had measles, whooping-cough and diphtheria. She had an attack of jaundice when she was twenty-two years old and malaria six years ago. Her menstruation began when she was about fourteen, and was regular, lasting two days. Some years ago she had an attack of sciatica, and gave a history of painful swellings in the axillæ, elbows and knees, possibly due to some lymphatic infection. When she was eighteen she fell, striking the back of her head, resulting for a time in severe headaches. Her present illness began two years ago, and its onset was gradual. She first felt pain in the little finger of the left hand. This was burning in character, and ran up and into the shoulder along the course of the sterno-cleidomastoid to behind the ear. The pain persisted for some time. Then the hand began to shake and grow weaker. The pain had lasted several weeks before the tremor and weakness became apparent. The tremor at first was very pronounced. About a year later she noticed a loss of power in the left leg, with stiffness and drawing up of the muscles, and some pain in the knee. During the past summer the pain had been referred to the ankle. She also complained of frequent attacks of diarrhea, with colic. There were no bladder symptoms. An examination of the eyes showed slight transitory diplopia and occasional nystagmus. No impairment of sight. There was slight and transitory inequality of the pupils; no Argyll-Robertson pupil. Consensual light reflex normal. Skin reflexes normal. No pains; no anesthesiæ; no disturbance of heat and cold sensations; no Romberg. Slight tremor of head at times. Musculature good. There was weakness and stiffness of the entire left side, more marked in the upper than in the lower extremity. No sensory changes in the entire body. The reflexes were increased on the left side. No Babinski; no clonus; no tremor of leg. The tremor of the arm was coarse, of the semi-intentional type, but not typical. The heart sounds were exaggerated, but there was no murmur. The leg dragged; there was marked stiffness and rigidity. No electrical changes; no atrophy. The patient claimed that her memory was not as good as formerly, especially for recent events. Otherwise no change was noted. Her friends stated that she was more irritable than formerly, but this was perhaps natural, as the tremor of the hand prevented her from carrying on her business as a dressmaker. The speaker said the symptoms were suggestive of a multiple sclerosis, of a cervical cord neoplasm, organic progressive hemiplegia.

Dr. L. Pierce Clark, who had seen the patient with Dr. Jelliffe at the Vanderbilt Clinic, said the case impressed him as one of multiple sclerosis, slowly progressive, and probably of the cerebral type. There were some evidences of involvement of the spinal cord.

**Myotonia Congenita.**—The patient, presented by Dr. Graeme M. Hammond, was a girl of sixteen, the youngest of three children. The other children were boys. One of them, aged eighteen, died suddenly a week ago of heart disease. The child's parents were cousins. There was no other case of myotonia on either side of the family for three generations; beyond that nothing was known of the ancestors.

The patient began to walk when she was ten months old. With the exception of measles in childhood she had always been well and healthy. When she was about two years old the mother noticed that the child, after sitting awhile, had great difficulty in getting up and walking. She arose slowly on account of great stiffness in the muscles and often fell. On attempting to walk she at first found it impossible to move, so rigid were her legs. Finally, she would move one leg stiffly, then the other, and began to walk with stiff, mechanical movements, like "a nursery doll." The more she walked the more limber she became, and in a few minutes walking became easy and natural, and she could even run and dance. This condition had persisted all her life.

The patient menstruated for the first time in March, 1904; then not again until September, 1904, and since that time she has not menstruated at all. Her body and arms were rather small, but the legs and thighs were very large. The knee-jerks, after sitting awhile, were present and responded quickly, but the movement was short. After walking, when the legs were quite limber, the knee-jerks were normal. Both calves measured 14¼ inches; the thighs (seven inches above the patella), 20¼ inches. The legs were 33 inches long. The muscles of the arms reacted normally to both forms of the electrical current. The legs seemed to respond normally to faradism. When galvanism was used, the muscles responded sharply and deeply to make of current, then immediately relaxed; then a second contraction ensued which was not so well marked as the first. The muscle, when it contracted, did so with a wave-like or vermicular movement. The same muscular tonus was observed after standing or lying down. The most difficult time the patient had was on attempting to rise in the morning.

Dr. G. L. Walton, of Boston, in the discussion spoke

of the liability of these cases to be taken for hysteria, on account of the apparently meaningless transition from clumsiness to agility. Continuous observation of the patient showed an unvarying adherence to fixed rules referable to disturbance of the neuromuscular mechanism, and independent of the mind. Dr. Walton also referred to a symptom that was present in two typical cases of myotonia congenita that had been under his observation, namely, the slow and clumsy ascent of stairs, followed by an active and nimble descent. This trial was then made upon Dr. Hammond's patient with the same result.

**Progressive Muscular Atrophy of the Left Upper Extremities.**—The patient, presented by Dr. Edward D. Fischer, was a young woman whose occupation was that of a machine worker, passing articles along under a machine, the left hand being engaged more than the right. Her family history was negative, as was also her past history, with the exception of the fact that when she was about ten years old she complained of pain in the upper arms, between the shoulder and elbow, when carrying her schoolbooks. About two years ago she began to notice some weakness in the left hand, together with some tendency to stiffness, especially when playing the piano. This was followed by wasting of the muscles, which appeared to be typical of progressive muscular atrophy. One peculiarity of the case was the extreme icy coldness of the hands, in spite of efforts to keep them warm. The electrical reactions were impaired. There were no sensory disturbances; no symptoms pointing to syringomyelia; no scoliosis. The atrophy was gradually extending up the forearm.

Dr. William M. Leszynsky said the case reminded him of one he saw recently in which there were various symptoms affecting the upper extremity, and in which the presence of a cervical rib was subsequently demonstrated. This abnormality, the speaker thought, should always be looked for with the X-ray in doubtful cases of this character, and would perhaps often explain symptoms which would otherwise be attributed to some lesion of the brachial plexus.

Dr. L. Pierce Clark said that he had recently seen two cases of early progressive muscular atrophy in which the symptoms observed in Dr. Fisher's case, that of coldness of the skin, was present. However, the symptom was confined quite distinctly to the skin distribution of the ulnar nerve in one case, and in the other the coldness occurred in the entire skin area of the first dorsal segment of the cord. He believed, in these cases at least, that progressive muscular atrophy was a lesion of the peripheral nerves as well as of the anterior horn of the cord; consequently, the sympathetic nerves were damaged, as in traumatic peripheral neuritis. Recent autopsy studies on progressive muscular atrophy would seem to confirm this pathological explanation.

Dr. William G. Spiller, of Philadelphia, said that in his experience progressive muscular atrophy was one of the rarest of all nervous diseases. He recalled one case in which the atrophy began in the extensors of the forearm, and was associated, he thought, with coldness of the hand. The explanation of the condition in that case was that the man's occupation was that of a fireman, and the atrophy began in the muscles that were most constantly used.

**Nerve Anastomosis.**—Dr. Alfred S. Taylor presented two cases. The first patient was a boy eight years old, who three years ago developed an attack of anterior poliomyelitis, which involved the right hand and forearm. The hand was entirely useless, but as the muscles of the shoulder and upper arm were in fairly good condition, the case was regarded as a suitable one for nerve anastomosis. Accordingly, a few days ago, the brachial plexus was exposed, and the seventh and eight cervical and first dorsal roots were divided, turned up, and inserted by lateral anastomosis into the junction of the fifth and sixth nerves. The anastomosis was effected without any tension on the nerves. The wound was then closed and the parts immobilized. The dressings were still in place, and the ultimate outcome of the operation, so far as improvement of function was concerned, was doubtful. The second patient shown by Dr. Taylor was a boy about eight years old, who in the early summer of 1903 had scarlet fever, followed by otitis media and mastoiditis, for which he was operated on July 13, 1903, at the Randall's Island Hospital. Three days later a facial palsy appeared, and rapidly progressed to complete paralyis. On October 24, 1903, 3½ months later, complete R. D. was found on electrical examination. A facio-hypoglossal anastomosis was immediately done under chloroform anesthesia. The facial nerve was found to be soft and friable and gray in appearance. But one suture could be made to hold to the hypoglossal, which in turn was under such tension that a fine suture was passed through a hypoglossal sheath to anchor the nerve to the neighboring fascia, and so prevent tension on the anastomosis, as far as possible. Primary union was obtained. There was almost complete palsy of the muscles supplied by the hypoglossal immediately after the operation. Ten weeks after the operation some difficulty of speech remained, owing to imperfect use of the tongue. Difficulty in swallowing mastication, and unilateral furring of the tongue, all of which were present for some weeks after the operation, and which were due to operative injury of the twelfth nerve, disappeared. Three months after the operation the face was far less asymmetrical than before, and the eye could be partly closed. R. D. was unchanged. At the end of eight months there was slight motion about the right side of the mouth. The improvement slowly continued, and now, fourteen months after the operation, the patient had a fair amount of control over the formerly paralyzed side of the face.

Dr. B. Sachs thought that 3½ months was rather too soon to consider an operation in a case of facial palsy, as in many of these patients improvement began after a much longer period than that had elapsed.

Dr. Hammond said that he did not think the return of power in the paralyzed muscles in the case shown by Dr. Taylor proved that the anastomosis had been successful. He recalled the case of a young lad who developed a facial palsy after a mastoid operation, and without any attempt at anastomosis, motion in the affected muscles was first noticed at the end of fifteen months, and eventually was absolutely restored.

Dr. Leszynsky said he had seen a great many cases of Bell's palsy following mastoid operations, and in his experience a favorable outcome, like that reported by Dr. Hammond, was rather unusual. He had followed some of his cases for a long time, and had failed to note any improvement.

**Further Report of a Case of Hypoglossal-Facial Anastomosis.**—Dr. Charles H. Frazier, of Philadelphia, said that his first opportunity to operate upon a case of facial palsy was in August, 1903, when he was called in consultation with Dr. William G. Spiller to see a patient who, five months before, in a fit of mental aberration, had shot himself with a revolver, the ball entering the external auditory meatus. This resulted in a complete facial palsy, and from the manner in which the wound was inflicted, and the point of entrance of the bullet, there was every reason to believe that the facial nerve was completely severed in its

passage through the petrous portion of the temporal bone, before it made its exit from the stylomastoid foramen. The case was one eminently suitable for operative intervention, as the nerve was irreparably damaged, and the muscles hopelessly paralyzed. The operation consisted in a hypoglossal-facial anastomosis. During the eighteen months that had elapsed since the operation, which was done in September, 1903, the patient had been examined from time to time, and there had been a slow but progressive improvement. One month after the operation there was no response to the faradic current in any of the muscles. Reaction of degeneration and polar changes were marked. Six months after the operation there was no change in the condition. Nine months after the operation there was still no response to the faradic current, while with the galvanic current there was lessened irritability. At this date there appeared for the first time a peculiar involuntary movement of the angle of the mouth. Fourteen months after the operation there was still no response to the faradic current, but a slight increase of irritability under the galvanic current. Polar change still distinct. Seventeen months after the operation voluntary movements at the angle of the mouth were for the first time observed. In addition to this, the patient was able to almost completely close the eye. All the muscles responded to the faradic current. Dr. Frazier called attention to the fact that it was not until after the fourteenth month had passed that a positive reaction to faradic stimulation was observed, with one exception, namely, the orbicularis palpebrarum, which responded slightly in the ninth month. Another interesting point was the restoration of an involuntary before a voluntary movement. In those cases in which the anastomosis had been made with a branch or the trunk of the spinal accessory nerve, associated involuntary movements were the rule rather than the exception. The speaker called attention to the order in which the muscles regained their power, beginning with the muscles of the lower part of the face, those supplied by the branches of the cervicofacial division, and extending gradually to the upper part of the face, or those supplied by the temperofacial division. One of the arguments that has been advanced against the selection of the hypoglossal nerve was the resulting atrophy of the tongue. Section of the hypoglossal nerve would be followed by paralysis of the depressors and some of the elevators of the hyoid bone, with atrophy of one-half the tongue. The speaker said that apart from the misshapen appearance of the tongue, which was not to be compared in importance with the facial deformity one was striving to relieve, he had not found any other disturbance arising from section of the hypoglossal nerve. In none of his cases was there difficulty in swallowing or talking.

Dr. Frazier said he thought no one would question the propriety of the operative treatment of facial palsy. The operation was founded upon a physiological law, proven by experimentation, and the clinical experience of a number of observers had established all that was claimed for it. The only feature in the technic of the operation worthy of discussion was the choice between the eleventh and twelfth nerves. In a previous communication on the subject (*University of Pennsylvania Medical Bulletin*, November, 1903) the speaker said he expressed a preference for the twelfth nerve, and from subsequent investigation of the results of other operators and from his own experience, he still held to the same opinion. The whole question hinged upon the importance which was attached to the associated movements. So far as he had been able to learn from the recorded cases of spinal-accessory-facial anastomosis, there had not been a single instance in which a voluntary effort to raise the shoulder had not been attended with contraction of the facial muscles, and these so-called associated movements constituted a very serious objection to the selection of the eleventh nerve. As to the method of making the anastomosis, theoretically, an end-to-end anastomosis should secure the best results.

**Some Newer Ideas on Nerve Anastomosis.**—By Drs. William G. Spiller and Charles H. Frazier. (Read by Dr. Spiller.) The reader first raised the query whether it was possible to benefit in any way by surgical means the patient who was afflicted with an incomplete hemiplegia? Where the hemiplegia was complete or nearly so, one could not hope to accomplish anything by any surgical procedure. There were, however, many cases in which there was a partial return of power in the paralyzed limbs, and experience showed that usually the restoration of motion was greater in the flexors in the upper limb and greater in the extensors in the lower limb, excepting those of the toes. The restoration of the power of the flexors or the fingers and hand might be of little or no value unless there was at least a partial return of power in the antagonistic muscles, although the return need not be so great in the extensors as in the flexors. The question now arose whether impulses would pass from the brain over the central motor tracts to the anastomosed fibers of the peripheral ends of flexor and extensor nerves in such a way that useful return of function might be expected? Dr. Spiller thought the probabilty was that such a restoration, in part at least, would occur. It was true that movements and not muscles were represented in the brain cortex, but it had been demonstrated that when the lesion was in the peripheral nerves and anastomosis of nerves had been performed, a new form of associated movements might be learned by the brain. In order to study the conditions of paralysis existing in hemiplegia, Dr. Spiller examined 26 cases in which the paralysis dated from early childhood. The cases in which the hand had regained partial power were more numerous than those in which the foot had regained partial power. In 11 cases out of the 26 the flexors of the hand were so much stronger than the extensors that a nerve anastomosis might properly have been attempted, but only four cases offered much hope for improvement from an operation on the foot. From his investigations the writer concluded that there was probably a field for surgical intervention in certain cases of cerebral hemiplegia, but the cases must be carefully selected and thoroughly studied. Whether any benefit by nerve anastomosis would result to the hemiplegic individual or not, experience alone would decide. The subject, however, was one deserving attention.

Dr. Spiller said that for several years he had been trying to devise some method for the treatment of athetosis, which was one of the most distressing forms of involuntary movement, and the failure to control it in any degree was a reproach to medicine. Much study had been given to the causation of these movements, but our knowledge regarding the condition was very insignificant. In cases in which athetosis existed there must be an irritation of the motor system somewhere. We could not hope to remove the irritation in the brain, nor to cut the central motor fibers. The question arose could anything be accomplished in these cases by operation upon the peripheral nerves? Theoretically, the proper procedure would be to cut the posterior roots of the affected limbs, the number to be cut depending on the condition in each case. This was always a serious operation, and the results had at times been unexpectedly grave. Division of one or more of the motor nerves of the affected limb, with immediate suture of the divided ends, might

lessen the involuntary activity and weaken the muscles slightly. In athetosis, the flexors of the hand and fingers were often unusually strong, and where this was the case, the union of a peripheral end of a flexor nerve with the central end of an extensor nerve, and *vice versa*, might restore the proper relations of voluntary power, and lessen or abolish the involuntary movements.

Dr. Charles H. Frazier said that the adaptation of operations known as nerve anastomosis or implantations to the treatment of cerebral palsies, as proposed by Dr. Spiller, opened up a field in neurological surgery which seemed to be full of promise. His first clinical experience in this line dealt with a woman, sixty-five years old, who had an apoplectic attack five years ago. When the operation was performed, on July 28, 1904, she was hemiplegic; there was marked atrophy of the muscles of the hand, arm and forearm, but the paralysis was so much more marked in the extensor than in the flexor group of muscles that she could only partially, and then with great difficulty, extend the proximal phalanges. An incision was made along the inner border of the coracobrachialis, exposing the brachial vessels and the main nerve trunks. The median and musculospiral nerves were partially isolated, and a flap composed of one-half the median nerve was implanted into the musculospiral, and sutured in such a way that the nerve fibers of the median were imbedded into those of the musculospiral. The results of the operation up to the present time had not been very positive, although it was still possible that greater improvement would take place as time went on. It was too early to predict the final result. There were innumerable details in the method of executing these operations, which could only be determined by thorough and repeated experimental investigations and clinical observations. The experimental work was being carried out on dogs. As compared with tendon transplantation, the only other surgical measure which could be applied for the treatment of these palsied conditions with uneven distribution of power in those muscles that opposed one another, the speaker said he could not but feel that in the transference of a proportion of nerve force, in an amount still to be determined, from one group of stronger muscles to the weaker, we had at our disposal a means of control which might be productive of better results.

**Contribution to the Pathology and Surgical Treatment of Chronic Facial Palsy.**—By Drs. L. Pierce Clark, Alfred S. Taylor and Thomas P. Prout. (Read by Dr. Clark.) The reader said it was not known why the facial nerve suffered from palsy with such frequency, nor was there as yet adequate information regarding the nerve elements or the part of the nerve that was primarily involved. The frequency of Bell's palsy was probably due to anatomic causes. The nerve had a tortuous and exposed course through the Fallopian canal, and the extension of inflammation from the middle ear, or the effect of cold acting through this channel upon the facial nerve was easily understood. Facial palsy, both in man and animals, was relatively infrequent when the face and head were properly protected. It seemed reasonable to suppose also that a certain number of individuals suffered from a congenital narrowing of the foraminal exit of the nerve. There were good reasons to believe that the initial changes of this condition took place in the perineural sheath, although the exact pathogenesis of Bell's palsy was still uncertain, because of the meagerness of the material at hand for study. In two cases of typical, uncomplicated Bell's palsy coming under the authors' observation and treated by faciohypoglossal anastomosis, a section of the affected nerve was excised, and submitted to Dr. Prout for microscopical study. In the first of these cases, the paralysis had existed for three and one-half months; in the second for twelve years. Dr. Prout reported that in the first case the nerve was in a condition of incomplete degeneration. There was still a few nerve fibers undegenerated, or in which the myelin sheath was only partially broken up, and these stood out in marked contrast to the degenerated nerve fibers in which they were imbedded, which latter showed here and there fragments of myelin. There was furthermore a marked invasion of the tissues with leucocytes, and the cells of the neurilemma were shrunken and shriveled in some portions; in others the nuclei of the neurilemma cells were large and well defined. The perineural sheath showed marked infiltration with leucocytes. In the second case, which was of a chronic character, the nerve fibers were completely degenerated, showing but occasional granules belonging to the myelin sheath. There were no undegenerated fibers. The tissues belonging to the perineural sheath showed the most decided changes. There was marked proliferation of the cells belonging to the perineural sheath, with infiltration of the tissues, and clumps of cells scattered here and there throughout the section. This tissue exceeded the proper nerve tissue of the section by about two to one. The neurilemma cells were markedly shrunken and shriveled. The painlessness of Bell's palsy, even to external pressure on the nerve trunk and the paralyzed muscles, argued for a simple degenerative neuritis in the peripheral portion, and not a parenchymatous affection. There was good reason to believe that Bell's palsy was primarily a Fallopian neuritis, which through strangulation of the nerve strands induced a low grade of secondary degenerative neuritis in the periphery.

Dr. Alfred S. Taylor said that his technic faciohypoglossal nerve anastomosis was described in detail in a paper upon the surgical treatment of facial palsy, by Dr. L. Pierce Clark and himself, which appeared in the *N. Y. Medical Record*, February 27, 1904. The operation involved the following steps: (1) The incision; (2) isolation and section of the facial nerve; (3) exposure of the hypoglossal nerve; (4) the implantation; (5) the closure of the wound; (6) the after-treatment. The incision involving the skin and subcutaneous tissue passed along the anterior margin of the mastoid process and the sternomastoid muscle for about 5 cm., starting at the level of the external meatus. When the facial nerve was identified it was enucleated from the surrounding connective tissue, and divided as far up in the stylomastoid forearm as a narrow-bladed knife would allow. Usually one could get from one to two cm. of free nerve trunk.

The isolation of the hypoglossal nerve was the most difficult step, and involved whatever danger there was in the operation. Once identified, it was dissected upward until the stump of the facial nerve could be approximated to it without tension. This had to be done with care, so as not to divide the minute branches from the pneumogastric, the upper ganglion of the sympathetic, and the two upper cervical branches, all of which were in the immediate neighborhood. While the nerve was supported on a blunt hook, a slit one-half cm. long was made well into the nerve trunk. A fine curved needle was threaded to one of each pair of long silk ends previously left tied to the stump of the facial nerve. One suture was passed through the inner and the other through the outer margin of the wound in the hypoglossal nerve. When the sutures were tied, the wedge-shaped end of the facial was snugly held in the cleft of the hypoglossal nerve, and was usually best turned slightly upward by means of a probe, a procedure suggested by Dr. Weir. These sutures should not be tied too tightly, lest they injure the fibers of the hypoglossal

nerve, a few of which were almost surely included in their grasp. To prevent the ingrowth of connective tissue elements, Cargile membrane was wrapped about the nerve junction. The hypoglossal was then dropped back to its normal position, and there was usually no tension on the tissues. The after-treatment was a most important feature in obtaining the desired result. Massage, electricity, and later, coordinate muscular movements should be persistently and systematically resorted to for months. As to the time when the operation should be done, Dr. Taylor said that that must be left to the neurologist. The muscles should be kept in good condition. It was known that there was a return of motor power in some instances even after many years had elapsed. In connection with his remarks, Dr. Taylor reported six cases of hypoglossal nerve anastomosis, and showed a number of new instruments that he had designed for the purpose of rendering the operation easier technically, and of avoiding distressing sequelæ. These instruments were illustrated and described in detail by Dr. Taylor in the *N. Y. Medical Record*, March 4, 1905, page 359.

Dr. Charles A. Elsberg reported the following case of facial-spinal accessory anastomosis. This report, he said, must be regarded as preliminary, as the time that had elapsed since the operation was not long enough for a complete report: C. F., female, thirty years old, was referred to Dr. Elsberg in May, 1904, by Dr. H. Heiman. When the patient was six months old she had an attack of convulsions, followed by paralysis of the left side of the face, with loss of smell and hearing on the same side. In spite of treatment, the paralysis did not improve. Massage, electricity, injections of strychnine, etc., were continued for many years without any improvement. When Dr. Elsberg first saw the patient she presented the characteristic features of an old facial palsy. Dr. B. Sachs was asked to see the case in consultation, and found that the left facial paralysis was almost complete. There was a slight faradic response to the lowermost branch of the nerve, and the galvanic response was diminished, but the polar formula was not altered in the orbicularis oris, or in the nerve itself. There was partial lagophthalmus. Examination of the ear and nose was negative. After careful consideration, it was decided that in spite of the long duration of the paralysis, an operation might be attended by success. This was done on May 10, 1904, about 9½ months ago. The facial nerve was anastomosed with the spinal accessory by slitting both nerves, and joining the branch of the eleventh nerve to the trapezius muscle to the separated portion of the facial with fine silk sutures. Thus neither the eleventh or twelfth nerves were entirely divided. The wound healed by primary union, and the patient was discharged from the hospital in two weeks. Briefly, the after-course was as follows: There was complete paralysis of the trapezius and a partial paralysis of the left sternomastoid after the operation. This disappeared in about six months. Eighteen days after the operation, the patient declared she had a continual feeling of tenseness in the left side of the face. On the twenty-sixth day she declared that she could close her eyes better, and that the left eye did not tear any more. On the ninety-sixth day the patient wrote from the country that she had noticed that she was able to move the left corner of her mouth a little, and that she could close the left eye better.

On the one hundred and twenty-second day, the orbicularis oris contracted strongly to the faradic current; the muscles of the lower lip slightly to galvanism. The same muscles contracted when the spinal accessory was stimulated. Associated movements of the left shoulder and the left side of the face could never be obtained. On the one hundred and sixty-sixth day, the patient was able to draw the left angle of her mouth slightly upward and outward, and could close her left eye almost completely. From that time up to the present there had been a slow but a steady improvement, additional muscles beginning to contract to galvanism and faradism every few weeks. The case was unusual on account of the duration of the paralysis at the time of operation (29½ years), and because of the absence of associated shoulder movements.

Dr. B. Sachs said that in deciding the question whether to anastomose the facial nerve with the hypoglossal or the spinal accessory, his preference would be in favor of the latter procedure, as it involved a nerve of lesser dignity than the former. The hypoglossal was a nerve of great importance, and if the same result could be obtained by substituting the spinal accessory, he would certainly favor it. The entire question of nerve transplantation was an extremely important one, and the physiological aspects of the problem were still unsolved. The speaker said he sincerely hoped that the procedure would prove beneficial in hemiplegia, but until further experimental work had been done, the aspect of the subject could not be intelligently discussed. In facial palsy several cases had been reported where the nerve anastomosis had been done three and a half or four months after the onset of the disability. This he thought was too early, as many cases were on record where improvement began much later without treatment or in spite of treatment. A year should be allowed to elapse before operation.

Dr. Leszynsky said he was interested in the remark made by Dr. Frazier that the power would be restored with the return of faradic irritability. The speaker said he had seen patients with facial paralysis of long standing in whom the faradic irritability had returned, although there was no return of motility. These were exceptional cases, but they had been observed, so that the mere return of faradic irritability did not necessarily indicate that there would be a return of motility. The speaker said he agreed with Dr. Sachs that three or four months was too soon to operate on these cases.

Dr. Walton said that Dr. Spiller's proposition should have the benefit of trial. In disease or injury of the lower neurons, every gain in motion, however slight, was gladly welcomed, and if hemiplegics could be helped by nerve transplantation there was the added hope of lessening the cerebral spasm to which Dr. Spiller had referred, and which in one case coming under the speaker's observation was so troublesome that the arm was amputated at the shoulder at the request of the patient. The brilliant result in Dr. Elsberg's case demonstrated the possibility of transplanting the spinal accessory without causing associated movements, which seemed to be the chief drawback to choosing this nerve in preference to the hypoglossal.

Dr. Spiller, in closing, said the statement made by Dr. Taylor that in late cases, where the paralysis had existed for a long time, the nerve may have disappeared was correct. The speaker recalled such a case where the facial nerve could not be found at all. In facial palsy one of the earliest evidences of a return of power that could be elicited was a slight deepening of the nasolabial fold when the eyes were closed tightly.

Dr. Frazier, in closing, said that in his cases of nerve anastomosis the hypoglossal had been selected in preference to the spinal accessory purely on theoretical grounds and a study of former operations, and also because associated movements had followed the selection of the spinal accessory. The case reported by Dr. Elsberg was the first one in which these associated movements had not occurred.